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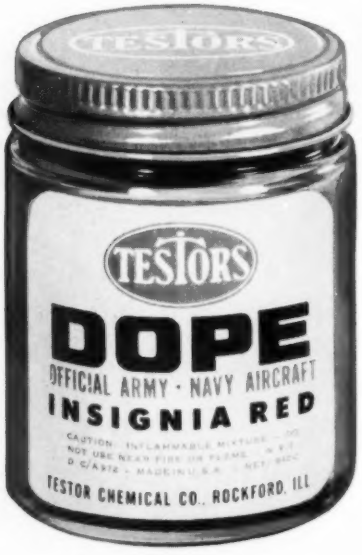

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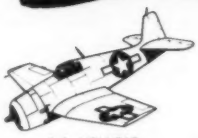

B-1 HELLCAT

B-2 THUNDERBOLT

B-3 CORSAIR

B-4 SUPERFORTRESS

B-5 CONSTELLATION

B-6 SKYMASTER

B-7 NAVION

B-8 PIPER CUB

B-9 CESSNA

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C-3 Aeronca (Not Illus.)	.10	C-9 Globe Swift	.10
C-4 Stinson (Not Illus.)	.10	C-10 Curtiss Robin	.10
C-5 Cessna	.10	C-11 Mustang	.10
C-6 Fokker DVIII (Not Illus.)	.10	C-12 Monocoupe	.10

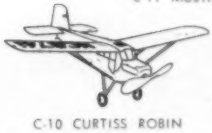
C-2 TAYLORCRAFT

C-5 CESSNA

C-7 BEECH BONANZA

C-8 RYAN NAVION

C-9 GLOBE SWIFT



C-10 CURTISS ROBIN

C-11 MUSTANG

C-12 MONOCOUPE

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F-3 Aeronca	.25	F-9 Swift (Not Illus.)	.25
F-4 Stinson	.25	F-10 Curtiss Robin (Not Illus.)	.25
F-5 Cessna	.25	F-11 Mustang (Not Illus.)	.25
F-6 Fokker D VIII	.25	F-12 Monocoupe	.25

F-1 PIPER CUB

F-2 TAYLORCRAFT

F-3 AERONCA

F-4 STINSON

F-5 CESSNA

F-12 MONOCOUPE

F-8 NAVION

F-6 "FOKKER D VIII

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E-8 Mustang	.25	E-17 Spad (Not Illus.)	.25
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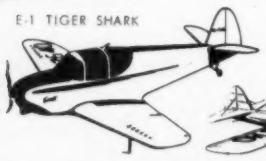
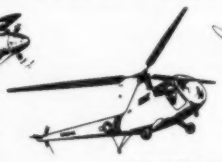
E-11 Navion (Not Illus.)	.25	E-25 Aeronca "K"	.25
E-12 Firefly	.25	E-26 Stinson SR-7	.25
E-13 Cricket	.25	E-27 Bluebird (Not Illus.)	.25

E-1 TIGER SHARK


E-4 SWIFT

E-6 TAYLORCRAFT

E-8 MUSTANG


E-9 HELICOPTER

E-12 FIREFLY

E-13 CRICKET

E-26 STINSON SR-7

E-25 AERONCA K

E-24 PHANTOM FURY

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S-2 CESSNA

S-3 PIPER CUB

S-4 TAYLORCRAFT

S-6 STINSON

S-5 LUSCOMBE

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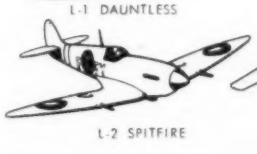
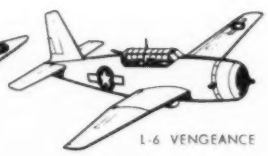
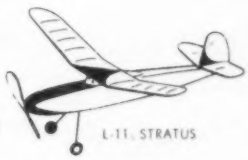

L-2 SPITFIRE


L-6 VENGEANCE

L-8 ERCOUPE

L-9 DIPPER


L-11 STRATUS

L-10 SKYROCKET

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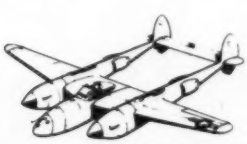
		P-11 Gull	1.00

P-1 MUSTANG

P-4 HELLCAT


P-5 LIGHTNING P 38

P-6 CLIPPER, JR.

P-7 PEPPER

P-11 GULL

P-9 AERONCA

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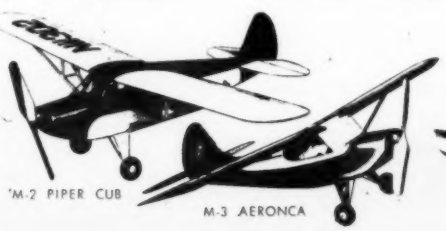
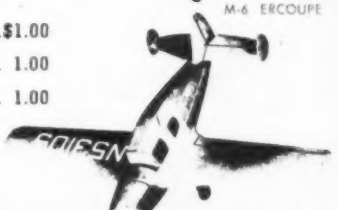
M-3 Aeronca	1.00	M-6 Ercoupe	1.00

M-1 TAYLORCRAFT


M-2 PIPER CUB

M-3 AERONCA

M-4 BEECHCRAFT BONANZA


M-5 BELLANCA CRUISER

M-6 ERCOUPE

GAS MODELS

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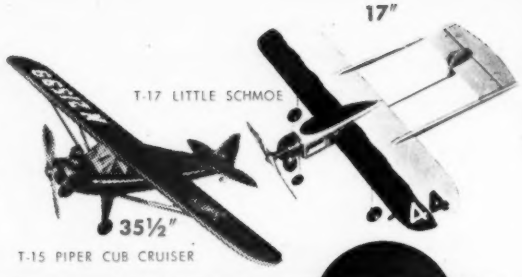
17"



T-17 LITTLE SCHMOE

35½"

T-15 PIPER CUB CRUISER

GAS MODELS — FREE FLIGHT

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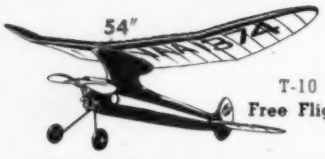

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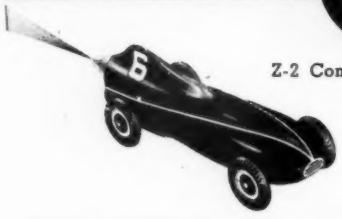

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MODEL AIRPLANE NEWS

Serving Aviation 22 Years

MAY, 1951 VOL. XLIV — NO. 5

CONTENTS

CONSTRUCTION

Snappy Stuff 16
The Fabulous F4B-4, Part Two 22
Buttercup 28

NEWS

Scrap Box 5
Report from the West 9
Planes in the News 15
AMA News 25
Over the Counter 38
News of Modelers 42

FEATURES

Air Ways 20
Rumpler D-1 Masterplan 26
Design Detail 30
Republic F-84F, Plane on Cover 35

ARTICLES

Speed Can Be Fun 11
Rumpler D-1, World War I 27
Simple Motor Control 32
Controller Box 33

THREE VIEWS

Thomas Morse FB3 36
Focke-Wulf 190 53

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Eddie Cosh, editor of Model Aircraft, a British model airplane magazine, says in his February issue that "we" would like to present our "old friend Bill" with the Jim Walker (you-know-what) Award for the Scrap Box's recent proposal to modernize the Wakefield. Eddie is an old friend of ours, dating back to the 1939 visit of the British Wakefield team to these shores—which invasion we helped repel by timing Dick Korda's flight, such a long one that our chest was sunburned despite a shirt while lying side by side with Al Casano, the other timer—waiting for the Clevelander's box to come down. Reluctantly we draw a bead on friend Eddie.

Commenting on the Scrap Box's remark that there is not a super-Wakefield model in this country (the USA), Eddie states, "There you have it—because the USA has not won the Cup since the war we must change the contest to an AA power event. Obviously, the fact that the most coveted trophy in the model aircraft world is seldom won with a lucky thermal flight (the last occasion was Dick Korda's 45-min. effort in 1939) is not popular with some Americans.

"The statement that the writer doubts if there are more than six super-Wakéfield models in the world is almost too fantastic to be worthy of comment . . . why, in this country alone," Eddie winds up, "we could pick six or more Wakefield teams of equal merit, all capable of putting on a good show in the actual contest."

With a hasty look at the February issue of MAN—which contained plans for Ellila's model—to see if it really was Finland—a country with one good model as opposed to Eddie Cash's serried ranks of world beating contest teams—that won the Wakefield, we shall try to put Eddie, and Model Aircraft, on the right track.

First, do we have a super-Wakefield model in this country? That can't be answered unless the question specifies a super-Wakefield for Finnish no-thermal competition, or one for more ordinary weather conditions. With the freaks being built for the 1951 rules still unproved, no one has any idea of the capabilities of the "dead-air" models. But we can take courage from this because the British, and everyone else, are no better off. If the thermal shooting type of machine was involved, there would be nothing to choose between the British and American machines, for Korda won in a year when British rubber failed dismally, and Chesterton won in a year when American rubber repaid the favor. In 1949 and 1950 the contest was won by a set of gears, the model itself being of admittedly ancient vintage. If by super Wakefield is meant anything that does over four min. in either wind or calm then neither the British or ourselves have cause to brag.

We do feel that England's Evans has pushed ahead of the field in refinement of design over the past few years—first with the Javelin, as flown by Chesterton (but a machine prone to turn topsy-turvy in a wind due to its great bellyfin) and last year with his second place airplane which, for all its cleverness, could not stand up to Ellila's set of gears. Let's get down to brass tacks.

The Javelin is not a super Wakefield. If it was, Evans would not have designed a better model—one incapable of beating Ellila—and other prominent British modelers would not have dropped the Jaguar for Evans' latest. But if you did count the Javelin a super machine, that, apparently, would give Britain two super jobs, hardly enough for six super teams. Warring doesn't seem to have one. Nor Copland. If they did, that is only four. Throw in Ellila and one of those high-placing Italian models, and the world still lacks six super Wakefield designs. With the new fuselage rules, moreover, the super ship is one with a five-min. ability and not four as of yore.

How can you explain Eddie's comment that the Americans want to see gas just because the USA has not come in first in the last three years? The comment by this writer that the Wakefield should be in line for overdue modernization can not be construed as an official opinion of the American modelers—among whom all Wakefield supporters can be expected to disagree violently. Eddie knows this. Therefore, any statement that the Americans want to change rules so they would have a better chance of winning (and how would that help since opposition would be world-best in any event?) not only is groundless but as unprincipled as one claiming that the British changed the Wakefield rules this year in order to beat Ellila's (*Continued on page 8*)

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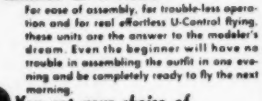

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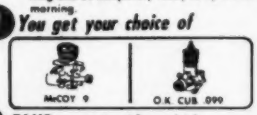

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All you do is take the plane out of the box, fill the tank, and FLY. You don't have the fun of building—all the fun's in the flying. Just nothing to build. And to fly, all you'll need extra is fuel and battery. All U-control.

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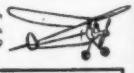

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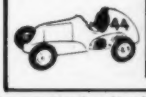

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EVERY part for EVERY ENGINE listed on these pages is IN STOCK at America's Hobby Center. Send today for the parts you need to keep your engine in flying condition.

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Flivver 24" B-C	3.95
Fly Boy 24" AA-A-B	1.00
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Flying Saucer 18" A-B	1.95
Flying Silver Saucer(4 ft. Diam.	4.65
Freshman 9 24" A	2.49

BURIED IN THIS AD are most of the new items. Sometimes there isn't time or space to include them. But, if available, we have it.

Freshman 19 30" A	2.98
Freshman 29 36" B	3.98
Hell—Razor 14" A	5.95
Hell—Razor 18" B	6.95
Hell-Razor 16" D	6.95
Hot Dog 17" A-B	2.00
Howard The 24" B-C	2.95
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Invader A 11"	5.95
Invader B 17"	7.95
Junior Stunt 3 27" AA-A	2.45
Junior Stunt 19 34" A	3.98
Junior Stunt 29 40" B	4.98
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Little Ripe 16" AA-A	1.50
Little Devil 18" AA-A	1.50
Little Mustang 16" (AA)	1.95
Little Schnoo 17" AA	1.50
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Peewee 32" A	2.95
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Pee Wee Pursuit 16" AA	1.00
Peter Pan 16" AA	1.00
Phantom Era 28" A-B	6.95
Piper Cub 22" AA	1.95
Piper Cub Comet 35" A-B	2.95
Piper Cub Monogram 35" A-B-C	4.95
Piper Cub Trainer 22" AA	1.95
Piper Vagabond 24" AA	2.95
Piper Vagabond 36" A-B-C	3.95
Pirate 40" B-C-D	4.50
Pitts Special .32" A-B	1.95
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Puddle Jumper 19" AA	1.00
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Sophomore 9 36" A	2.49
Sophomore 19 33" A	2.98
Sophomore 29 39" B	3.98
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Super Cinch 36" B-C	2.95
Super Clown 36" B-C	3.95
Super Sky Box Stunt 47" C-D	4.50
Super Smoky 40" C-D	2.95
Super Solution 18" A	3.98
Super Spirit 23" (Jet)	3.95
Super Stunt Stunt 29" A	1.95
Sweet Cheriot 18" AA-A	2.50
T-38 N.A. Trainer 30" B. C.	4.95
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Thing	2.95
Topper II 18" A-B	2.95
Trail Blazer 24" B-C-D	3.98
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Trister Profile 28" B-C	3.50
Trister Twin Profile 47" B-C	5.00
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Wing Ding 18" AA-A-B	2.95
Wing Ding 26" AA	2.95
Yank 22" AA	1.50

ACCESSORIES

FUELS (Continental U.S.A. Only)

For Ignition	Pts	Qts
Ohlsson #1, #3	.35	1.40
Power Mist #6	.65	
For Glo		
Ohlsson #2, #4 Fuel	.75	1.40
Ohlsson AA	.75	—
Ohlsson #2 or #4 Rem.	.50	—
Powermist Glo	.95	—
Powermist Spitfire		1.90
Ranger Glo	.90	—
Tostero 20	.75	—
Dynaglo	.75	—
Ranger AA	.80	—
Spitfire AA	.80	—
Blue Blazer #1	.70	—
Blue Blazer #2	.80	—

PROPELLERS

Rite Pitch Stunt 6, 9, 10, 11, 12, 13, 14 in., 6 and 8 pitch	25
Rite Pitch 8, 9, 10, 11, 12, 13, 14 in., 6, 8, 10 or 12 pitch	24
Scamper Plastic 5½"dia. .35; 7" 6" .45 10" 10p, 11" 8p .55	
Super Spl. 8", 9", 10", 11" in 4 & 5 p.	.55
Wen-Mac 5" dia., 4 sp. 5p. 6" 5p. 6p. 7p .65—.75; 7" & 8"—.80; 9" & 10"—.95c)	
Also Ohlsson, Flo-Torque, Gerday	

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E-Z Running Stand	1.95
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Dale Stunt Tanks—All Sizes .65

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Champion V, V2, V3, VR1, VR2	.85
Infant Glo-plug (spl)	.85
McCoy Hot Point	.85
Ohlsson Glo (V, V2 or AA)	.85
O.K. Glo-plug (V2 or V3)	.85
Plug washers	.05

IGNITION ACCESSORIES

6 ft. Hook-up wire	.35
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Coil Booster Plug-in	.30
Midget Switch: slide—.25 Turn	.30
Ohlson Snap-Pack	.35

PROP SPINNERS

⅝"—.25c; 1¼"—	.65
1½"-.85c; 1¾"-.90c; 2"-.95; 2½"-1.00	
3" Needle Nose 1¾" dia.	1.15
2"	1.20
Plastic 1½"	.50
Scamper Plastic 1⅛", 1¼", 2", 2½"	.45

WHEELS

Semi Pneumatic (pr) 2" 1.10	
2½"— 1.25 3" 1.75	
Sponge sumner, Dural hub (pr)	
⅞"-1" .20c 1¼";1¼",1.35 1¾"	.40
1⅞"-.60c, 2¼"	.75
Tail Wheels ½", 1½"	.15
Trexler Plastic (pr) 1¼" or 1½"	.60
1¾", 2"—.80c; 2½", 2½"—.60c; 3¼"	.75
Tail Wheels ½", 1½"	.15
Trexler Plastic (pr) 1¼" or 1½"	.60
1¾", 2"—.80c; 2½", 2½"—.60c; 3¼"	.75

AA ACCESSORIES

Shut-off Valve (state engine)	.65
E-Z Minimount	.85
.004 or .006 x 2—35	.35
.008 x 2—.52	.50

Flex Needle Valve (infant, spitfire torp Jr. & .049) .50

Flex Needle Valve (Cubs)	1.00
Spinners (state engine)	.80
Presto Starter (state engine)	.98
Props (state engine)	.98
Tanks (state engine) .50, .80,	.75
Neoprene (ft)	.50
Fuel Meter	.50

MISCELLANEOUS

Batt. Box Pos. and Medium	.40
	reg. .50
Brass Tubing 1/16", 3/32", 1/8"	.30
Coil Holder	.15
Copper Tubing ⅛" OD, per ft.	.20
Finger Guard	.40
Fuel Pump ½ pt., pt., qt.	.60
Metal Motor Mounts, Sm—.30c; Lg.	.50
Metal Pump Can	1.75
Needle Valve Exten. flexible	.25
Neoprene Tubing, per foot	.10
Transparent (reg. or AA) ft.	.15

Speedwagon 50 15" C-D	5.95	OK Cub	.75 —
Sportwing 36" A-B-C	3.95		.85 —
Squire 39" A-B-C	3.75	Spitzy	.50 —
Sunset Sta. Wagon 42" B-C-D	4.50	Supersonic 100	1.00 —
Stinson	1.95	Supersonic 1000	.30 —
Streamliner 25" B-C-D	4.00	Supersonic Ultra Glo	
Stunt Runt 18" AA	1.00	Pouring Spout For pint cans	.10
Stuntmaster 60" B-C	5.95	Hot Fuel Proofer	.25, .35 & .45
Stuntwagon 30 44" B-C	9.95		

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You get a complete set, except spark plug and tank. An interesting souvenir of a model engine in the raw for your den or desk.

No. J9 $1.00 per Complete Set

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Here is a book that tells you everything about Glo Engines, what they are and how they work. PLUS everything from selecting your engine to its uses, care and operation. Just read the table of contents.

TABLE OF CONTENTS

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SCRAP BOX

(*Continued from page 5*)

gears! Gears did change the rules. It is not in any modeler's make-up regardless of nationality, to take the easy way out when the problem is a mtter of trying to equal or better some other guy's airplane.

The old Chicago Aeronuts—did we say old? —are really cooking with bright new ideas, according to Ed Purcell. The "Nuts" have organized a program for gathering and releasing midwestern news. The Wakefield area eliminations is another Aeronut project. Seems that the local free flight boys were tempted by those new Wakefield rules and many an ingenious craft is taking to the air. Everybody is long-motor-run happy with or without gears. Jerry Ritz, he of the famed Ritz wing, and Art Christenson, experimented with a short, powerful motor for climb, and a tensioner release on a second motor of smaller cross section, for extended cruise. Frank Garcher and Denny Rushing have tried tandems, and very small stabs, both tractor and canard. Rumors from Rockford, meanwhile, discuss flying wings, which put maximum area in a single lifting surface.

"I've just read Stunt Outlook for 1951," says Jack Scharpf., AMA 3472, and a contest director yet, "and I've got to sound off. I think I am qualified, having been contest flying since 1946, in addition serving as CD and stunt judge at a number of contests held in this section of the country (South Carolina).

"My beef," goes on Jack with a bee in his bonnet, "is the manner in which the article suggests a contestant perform his maneuvers while being judged. When I am judging I position myself on the upwind side of the circle and caution all contestants to perform their maneuvers on the downwind (normal procedure side). After all he is out there to show me how well he can plan his flying, as well as how good his aerobatics are. If he does a maneuver where I can't see it properly then I assume it is poor rather than good, as the author thinks I will. I'm judging what a man shows, not what he hides.

"And I don't think it practical to start a horizontal eight with an outside loop," opines Scharpf, "in order to prevent the model being in a vertical dive position before recovery. As the AMA pattern says we fly three eights, that is like trying to say quickly three times Robinson Jack without saying Jack Robinson."

After hearing Joe Wagner, and now Jack Scharpf, outline such conflicting views on judging, an old free flighter assumes something is wacky in stunt. Since Jack is an old Navy pilot with 2,000 hr. on patrol bombers, as well as a model man, Radar isn't necessary to find the answer. Judging must be something. One sure cure for foxy flying is for the judges to make Joe Wagner's article—the portion that dealt with the experts' tricks in hoodwinking the judges—a manual for spotting villains.

G. F. Wagner—no relation to voluble Joe—from West Cheshire, Conn. was telling us about a novel rubber job developed by Pa Willard Ballou and son Glen Ballou. It resembles the old Pacer gassie, but the fuselage is even deeper and, of course, the nose is longer to balance the longer rubber motor. It has terrific climb and a good glide with pylon characteristics, a right hand power turn and a left hand glide. But there are no thrust offsets. Called the Polywog, it has placed in most contests entered, was lost on 400 turns at the Internats. Wagner says, "Whatever makes the pylon go right also makes this ship go right." Note that "whatever." That's one way to tell an expert. He wonders. Other guys always know. Always remember Dick Korda wondering why the Powerhouse didn't like to fly left. Every guy Dick thought enough of to ask didn't know either.

This design of Ballou's is interesting. You get that right hand power turn as soon as you get high profile area and brother, if you think that is theory, we'll eat it, free-wheeling prop and all. Some years back, Walt Schroder and the writer—deep in a six months battle over something or other, dragged out a 150 sq. in. job with such a profile. Theory said it would bank left under power—without offsets. It also was thought that we could fly a rubber job either right or left at will. A Wakefield prop was put on the little ship and strands added every flight until the power loading was fantastically low. More and more the ship went right under power. So bad that, at the end, it was being flown with a tremendous left offset in the entire vertical tail. Under power the ship would race to the right, laying on its side, then gradually climb in opening circles. When the prop stopped, it would spin in to the left. Seems to us that any modeler who is willing to experiment can develop himself a fine free flight that will perform a rigid pattern without adjustments. It would be necessary to eliminate warps through good structural design, good building, plasticizing and careful storage or surfaces when not in use.

In brief, by using enough pylon area you can get a right turn that is open, tight, or that will spin. You can balance your left glide adjustment against that spin-in without using offset thrust. Ed Lidgard once told us that a perfected rubber job should require no offsets either. Another factor making for spin-ins is changes in props. Once you find the right prop it is just as dangerous to change it as it is to alter the angle of a wing or tail. Not only does thrust vary but so does torque and, more importantly, the force of the twisting slipstream on the profile—especially pylon and vertical tail. Since those factors enter into power turn diameter and degree of bank, leave that prop alone! Two other prime causes of free flight basket cases are insufficient decalage—angular difference between wing and stab, and too deep a lifting section in the stab. With sufficient decalage, a ship will tend to flare out —when it reaches a certain excess speed; at higher speeds, a high lift stab will tend to tuck the plane under. If you use much decalage in radio you have trouble gaining speed in spirals to make a loop of the rocovery. Particularly, when it is the wing that has much positive. What started this, anyway?

by BILL WINTER

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REPORT FROM THE WEST

by Jim Saftig

The Inglewood Flight Masters recently held a scale free flight contest that proved a wonderful success. Cliff McBaine informs us that the Flight Masters have decided to make this an annual event. Judges for this event were men from the branch of the Institute of Aeronautical Sciences. Louis Culler won 1st prize with his Piper Cub Cruiser, with Thomas Protheroe and R. Seifried taking 2nd and 3rd places respectively with a Stinson L-5 and Focke Wulf Stosser. The Junior high point trophy was won by Dave Linn. Many other swell ships were represented, including the following: Fokker D8, Taylorcraft, S.E. 5's, Albatross D.V., Aeronca Chief, and a Storms Mono. There has been much discussion about holding scale free-flight meets and incorporating this type of model in some of the large contests that are coming up in the near future.

• • •

Russ Johnson tells us that the Hi Tailers are going to hold their First Annual AA Pay Load Contest on May 6th at Fontana Airport. Engines, trophies, and merchandise will be presented to the winners. W. G. Casselberry won the February club contest and set a new AA club record with a 13:14.8 total. We have noted many more of the AA PAA Load ships are making their appearance at Sunday flying sessions, which gives the impression that the small engines will outnumber the larger ones in this event as they have in other FF events.

• • •

The Long Beach Thunderbugs have initiated a Junior program that is coming along very well. The older flyers are more or less sponsoring the younger flyers by making some of the surplus engines on hand available to the lads and giving instructions. After the youngsters have mastered the building and flying bugs, they are taken to contests with the older flyers to compete. One of Jack Oxley's proteges clicked to take high time of the day at a recent meet held in Taft. It is sincerely hoped that more clubs will take to Junior programs as have the Thunderbugs.

• • •

We would like to give the Southern California Model Association a well deserved plug. Duly appointed representatives of the several clubs that make up the Association have completed an excellent Constitution and set of By-Laws. The General Purposes of the Association are, and we quote: "This Association is a non-profit association of, by, and for the model builder. Its general objectives shall be to promote the hobby and sport of building and flying model aircraft." The Specific Purposes are: 1. To co-ordinate contest dates, 2. To support an effective Academy of Model Aeronautics, 3. To promote and sponsor youth activities in model building and flying, 4. To promote sportsmanship among the builders and flyers of model aircraft, 5. To publish information concerning the building and flying of model aircraft in Southern California, 6. To promote the active interest of other organizations in model aircraft building and flying, 7. To represent the model aircraft builders of Southern California in matters pertaining to district, national and international model aeronautics, 8. To assist and advise organizations in all matters pertaining to Southern California contests or eliminations. In the past, there has been quite a jumble of contests that have taken place on the same day. We remember in the Los Angeles area, sometime ago, that three U-control contests were scheduled for the same day. We believe that it was Ed Landsberg and Don Gullota who about wore themselves out trying to fly in all three of them. To get back to the point, an association would help straighten out an overlap of contest dates. It is very easy to have contest dates conflict in some areas where many clubs hold annual contests, and it is felt by many of the modelers that due to the unusually good

(*Continued on page* 36)

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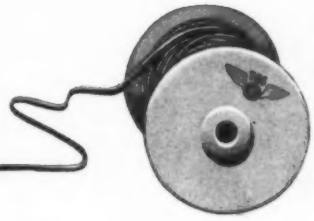

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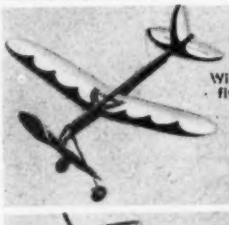

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MODEL AIRPLANE NEWS

MAY, 1951

At Plymouth finals, contestants as young as six years have won in speed. Beginners should start with trainer, between sport and speed.

SPEED CAN BE FUN

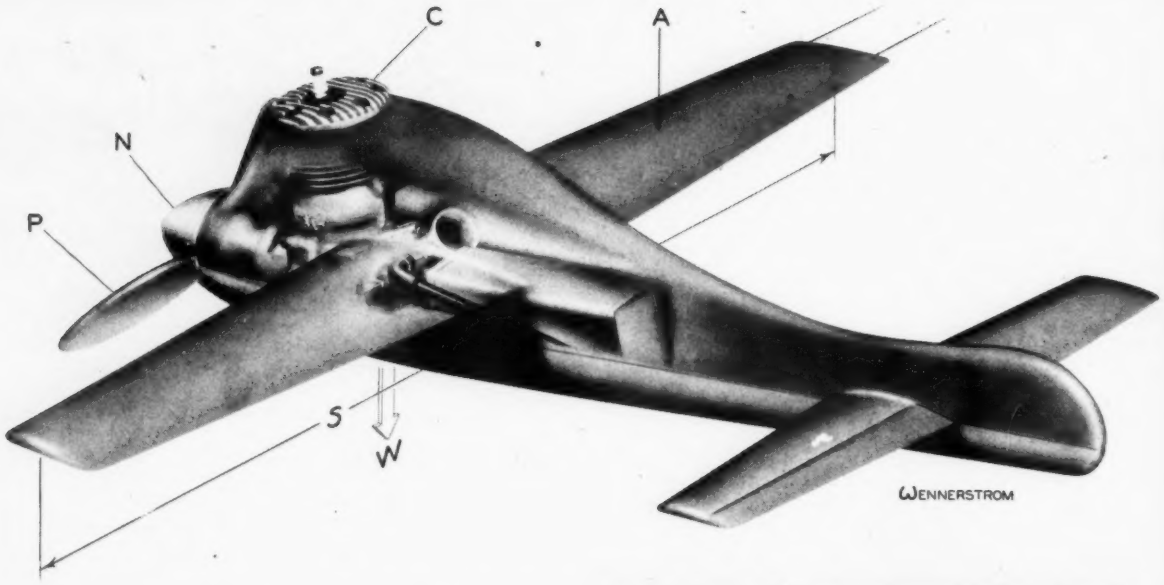
YOU, TOO, CAN FLY SPEED WITH THE HELP OF AN EXPERT'S SOUND SUGGESTIONS

by HAROLD deBOLT

Speed has given a great deal of enjoyment to thousands of flyers throughout the country, some of whom have never placed in a contest! That last condition is one which I would like to do my best to correct through this article; there is no reason why anyone who energetically takes up speed flying should not have some success with it. Basically, the sport is fairly simple if you are already a model builder, or you can make it just as complicated as you wish, for instance, shooting at a 200 mph goal! This may be what is happening in a lot of cases; we just do not stop to think before starting. After all, you must "creep before you can walk." With most modelers, it is a short story as they want to run right out of the cradle; they want to run a 100 yard dash before they can creep, let alone walk! With this thought in mind, it would seem advisable for the rookie speed flyer to set up some sort of a plan for action; that is he should hold back a little and work his way up the ladder instead of starting from the top and thus falling down the darn thing with the resulting bruise to his ego!

In this area of the country, I have had the pleasure of watching several modelers become successful speed pilots within the past year. A few of them were very young, under 12 years old, and a couple were grown men, so it would seem that the plan they followed was a good one regardless of the modeler's age. For the most part, the basic idea was the same. They aimed high but set their initial goal low; low enough so that even the rankest amateur could accomplish it. Of course, there was a reason for this and I believe that it is one which all modelers should consider. They asked the advice and help of local expert flyers; they asked them what they should do to get started; what type of models they should build; they asked how to make these models go; and last of all, they

Construction kits on the market—like this compact metal-bottomed Hell Razor—eliminate long period of trial and error design development.



asked for help at meets. Although they probably did not get all of the help that they would have liked to have gotten, they did get it when it counted and of the proper caliber too. As a result, they worked along the lines already suggested and today are rapidly becoming contenders in any league.

The models that these fellows first used for speed were not the 159 mph Hell Razor or the 162 mph Speedwagon; instead, they were of extremely simple design. Some of them went back several years and found older designs that were considerably easier to fly even though they are some what slower. The others cooked up what might be called a "Speed Trainer," that is a design half way between a sport model and a speed job. With the ample wing area and size of these models, plus their relatively slower speeds, success was almost assured, at least from the flying standpoint. The engines used in these models were for the most part stock McCoys or Doolings although in one or two exceptions they even started with sport engines such as Ohlssons. Now you might very well ask how anyone could hope to compete against the experts with a sport engine powered trainer. The answer is simple; they stayed in their own league at first and were satisfied if they could squeak by with a lowly place of one sort or another. There are hundreds of small local meets held every year and these provide a wonderful training ground for the newcomer to speed. In these meets, he can fly under the least mental strain and against competition of a caliber which will allow him to usually win some sort of a prize, and it is important that he should win something, for who likes to go fishing day after day if he doesn't even get a bite?

Of course, as the boys advanced along the line and learned a little more about the whole thing, they graduated into real racing engines and into more advanced models. However, for the most part, this was taken in stride for they had the required basic training to serve as a background for operating these newer and better models. Near the end of the season, this work began to bear fruit when one of the younger flyers out flew all the local experts and came home from the Plymouth International Meet with a nice trophy nearly as big as himself! Then, also, one of the older beginners made a clean sweep of several meets in the class he had been specializing in to close out the season with a bang. From such experiences as these, it certainly becomes plain that the idea of having a sound plan of action is a good one and one that can make any model builder an expert speed flyer in a surprisingly short period of time.

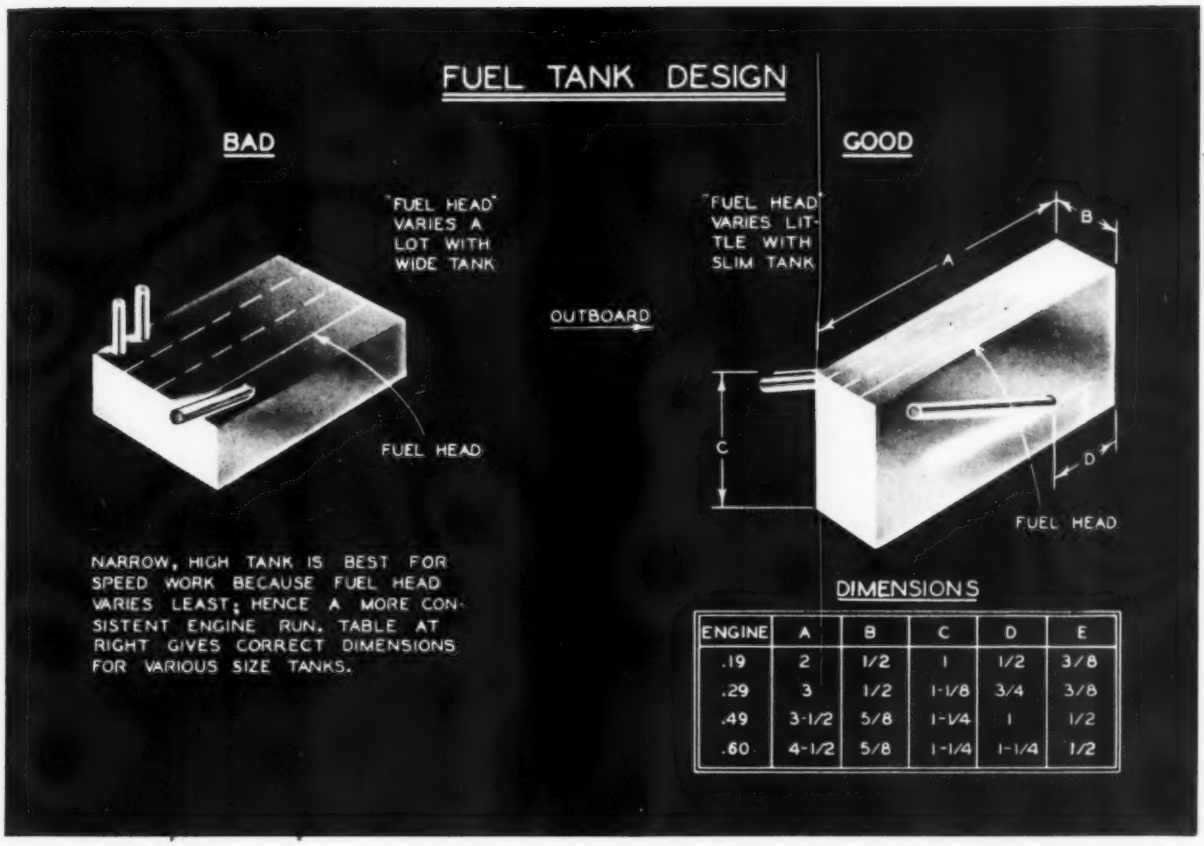
In watching the newcomers to speed throughout the

TYPICAL SPEED MODEL SPECIFICATIONS

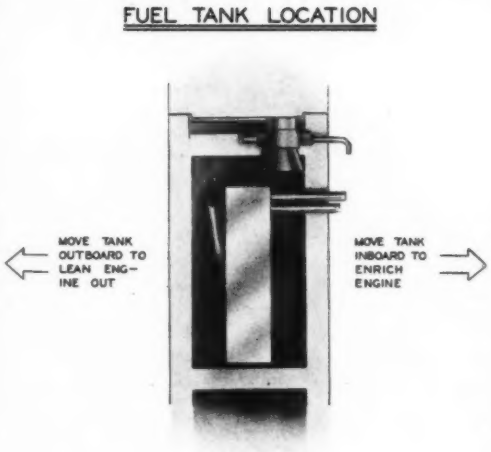
C CLASS	A WING AREA	S WING SPAN	W WEIGHT	P PROP	N SPINNER	EXPECTED SPEED
BEGINNERS MODELS						
A/2	50 SQ IN	15 IN	5 OZ	5-1/2-6	1 IN	60 MPH
A	50	15	10	7-8	1-1/2	100
B	60	18	16	8-8	1-3/8	115
C	75	18	28	9-10	2	120
D	100	20	32	9-11	2	135
ADVANCED MODELS						
A/2	35	12	4	5-6	1/2	75
A	35	12	9	6-1/2-9	1-1/4	115
B	40	14	12	7-10	1-3/8	130
C	45	15	20	8-12	1-3/4	130
D	55	15	25	9-11	1-3/4	150

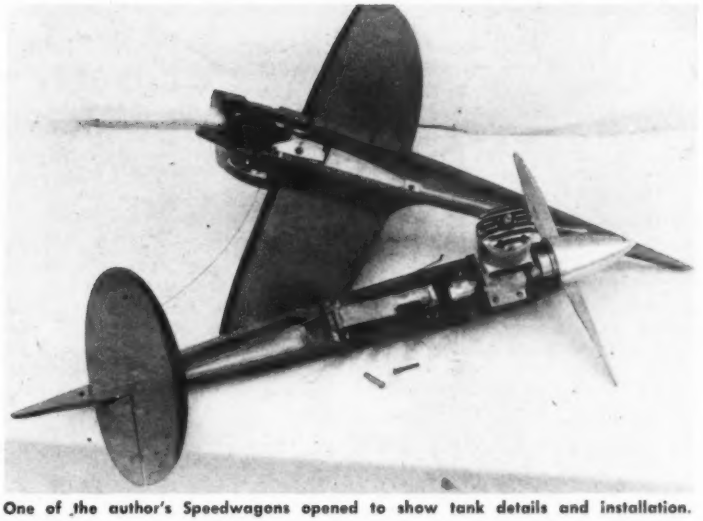
past few years, one thing has come to stand out in my mind. Although a great many of them seem capable of building a very acceptable model and for the most part are able to fly it, many seem unable to obtain consistent speeds. Some will start off on a flight and will be lucky to get two or three good laps, while others will put in a whole flight with a rich or lean engine. Naturally, things of this sort tend to hold their speeds back and in many cases, it proves discouraging. There is nothing that can be so encouraging to any speed flyer, beginner and expert alike, as to have a good flight with a speed that he knows is the best the model will do. When he can take off and have the model operate perfectly for lap after lap even though he may not be close to a winning speed, he does have the satisfaction that comes from knowing that he is the master of the model. His only worry then is what can be done to make that model go faster. Gone is the need to find out why the model did not perform as it should. Perhaps if we could present some simple ways to accomplish this, it would do more good than any other one thing.

Basically, providing that the model flies correctly, the trouble usually lies in the engine installation. As a general rule, if the engine will run well on the ground, it will operate equally as well in the air. Today, our engine problems are relatively simple in comparison to what they were when ignition was in vogue. Now, the only worry lies in how to get the proper amount of fuel to the engine at all times. This fuel problem has been a tricky one due to the great volumes consumed by our present day engines. The engine people have gone all out to give us tremendous power, but in so doing, they have made the engines a lot more critical. Part of this is due to the higher speeds, but it all can not be laid to that, as the same problems seem to pop up even at 100 mph. Therefore, it would seem that the engine installation including the fuel tank


FUEL TANK DESIGN
BAD
GOOD
"FUEL HEAD" VARIES A LOT WITH WIDE TANK
"FUEL HEAD" VARIES LITTLE WITH SLIM TANK
OUTBOARD
FUEL HEAD
A
B
C
D
FUEL HEAD
NARROW, HIGH TANK IS BEST FOR SPEED WORK BECAUSE FUEL HEAD VARIES LEAST; HENCE A MORE CONSISTENT ENGINE RUN. TABLE AT RIGHT GIVES CORRECT DIMENSIONS FOR VARIOUS SIZE TANKS.
DIMENSIONS

ENGINE	A	B	C	D	E
.19	2	1/2	1	1/2	3/8
.29	3	1/2	1-1/8	3/4	3/8
.49	3-1/2	5/8	1-1/4	1	1/2
.60	4-1/2	5/8	1-1/4	1-1/4	1/2



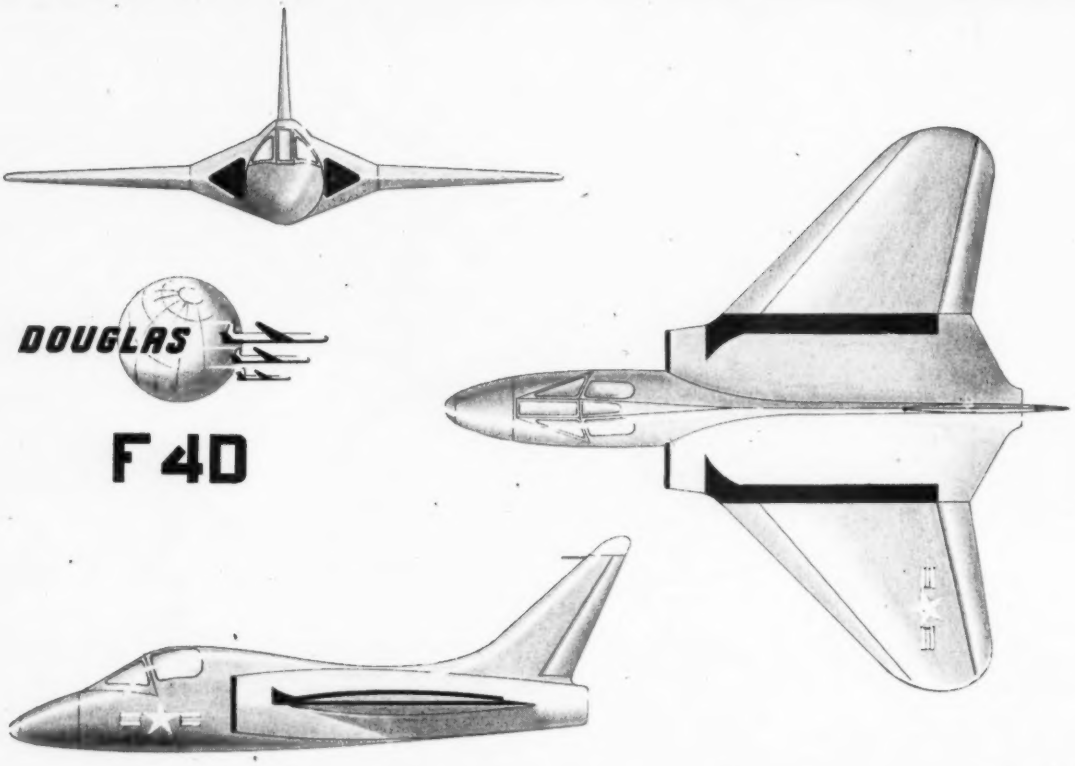


One of the author's Speedwagons opened to show tank details and installation.

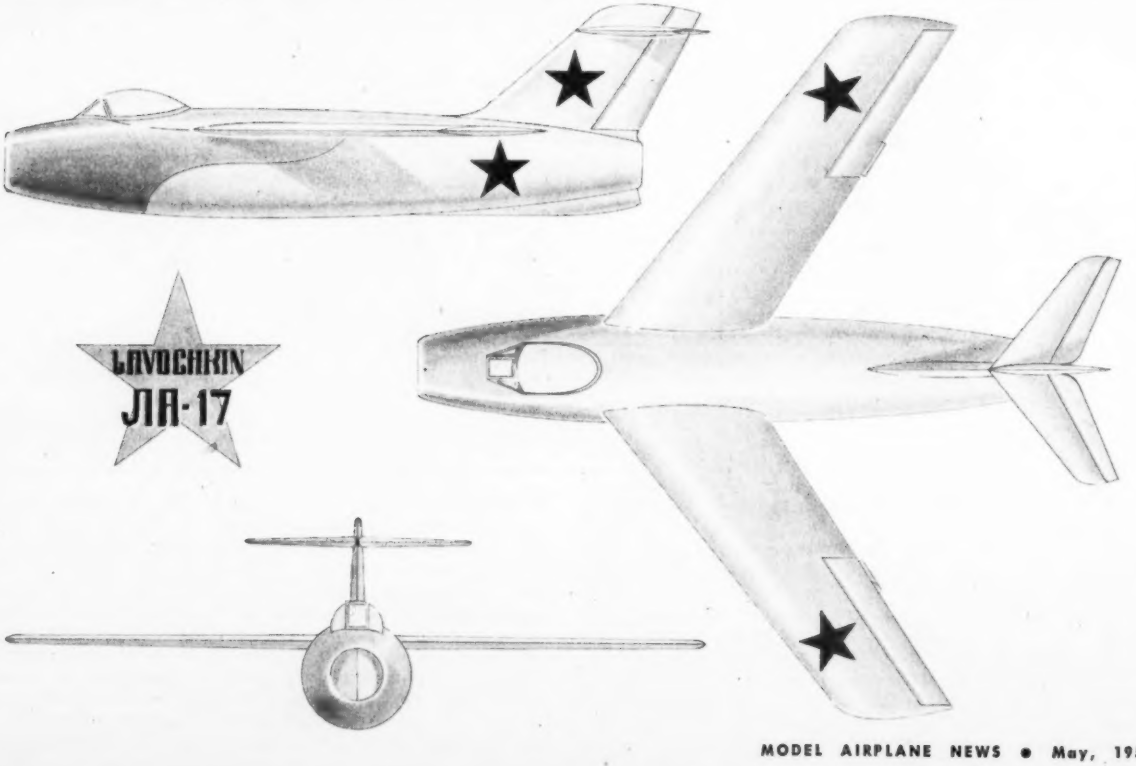
could be far more important than any other single item in our speed model!

First of all, the engine should be mounted solidly, as it should have a good substantial foundation upon which to operate. This may seem to be an item that is taken for granted; however, in many cases, it is not done and as a result it provides trouble of the type that is extremely hard to diagnose. An engine operating on a weak foundation or running with spinners and props that are out of balance, sets up considerable vibration which can easily cause fuel trouble. What happens is that the vibration causes the fuel to slosh around in the tank or "boil". The result is that while on the ground the engine is sucking in this boiling fuel which contains a great amount of air. To compensate for this air, you adjust the needle valve much richer so that you obtain sufficient fuel to keep the engine running. When your model becomes airborne, a condition builds up which is called the "head of fuel"; that is, the fuel is forced by centrifugal and other forces to the outboard side of your tank. When this happens, the fuel is changed back from a boiling state to a solid and under a bit of pressure too; inasmuch as your needle valve was set for fuel containing a percentage of air, it now becomes a false setting (*Continued on page* 41)

No. 3—Douglas XF4D



No. 4 — Lavochkin



Hottest plane of the year? Douglas XF4D is catapult launched, folding wing delta, intended for interception of bombers before they can get into position for strike. Almost a missile!

planes in the news .....

by DAVID ANDERTON

An authentic monthly report on the latest aircraft. More three-views for plan savers.

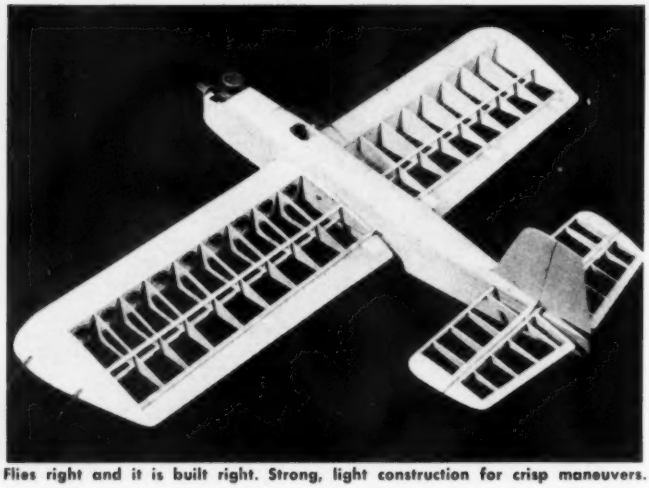
We're beginning to roll again in aircraft production. The empty buildings that last year contained only the ghosts of Superforts and Helldivers and Mitchells are echoing with the slamming of rivet hammers. And the shadow contracts, that called for sort of a study-standby status for industry, are being given real substance.

Once again, the airplane is really big business. Boeing has a current backlog of over one billion; other firms have unfilled orders of at least half that amount. And the whole thing has that here-we-go-again appearance. There's one consoling thought, though: If it is true that we are off again, we're in much better shape right now than we were something over nine years ago on a gray Sunday morning. And the top-level planning is banking heavily on air power as our major weapon. What are we getting? Let's have a look . . .

First Candidate for title of hottest plane of the year is the Douglas F4D, which resembles a missile more than an airplane. This tiny craft is built around a switch on the delta-wing idea; the point of the triangle has been altered extensively to make room for a fuselage and air inlets for the single jet engine which powers it. Judging from size alone, the plane should be capable of tremendous rates of climb; its light weight and high thrust again remind you more of the missile than the airplane.

The fuselage and the tricycle landing gear are perfectly conventional; from there on, all bets are off. The delta-wing layout, of course, requires no horizontal tail. That means a bit of a control problem, and to prevent you and me and lots of other people from finding out how Douglas has done it, the only possible locations for control surfaces have been neatly (*Continued on page* 43)

North American four-jet RB-45's that made flight to England were equipped with flight refueling gear, 1,200 gallon finned tip tanks as shown.



Flies right and it is built right. Strong, light construction for crisp maneuvers.

snappy stuff

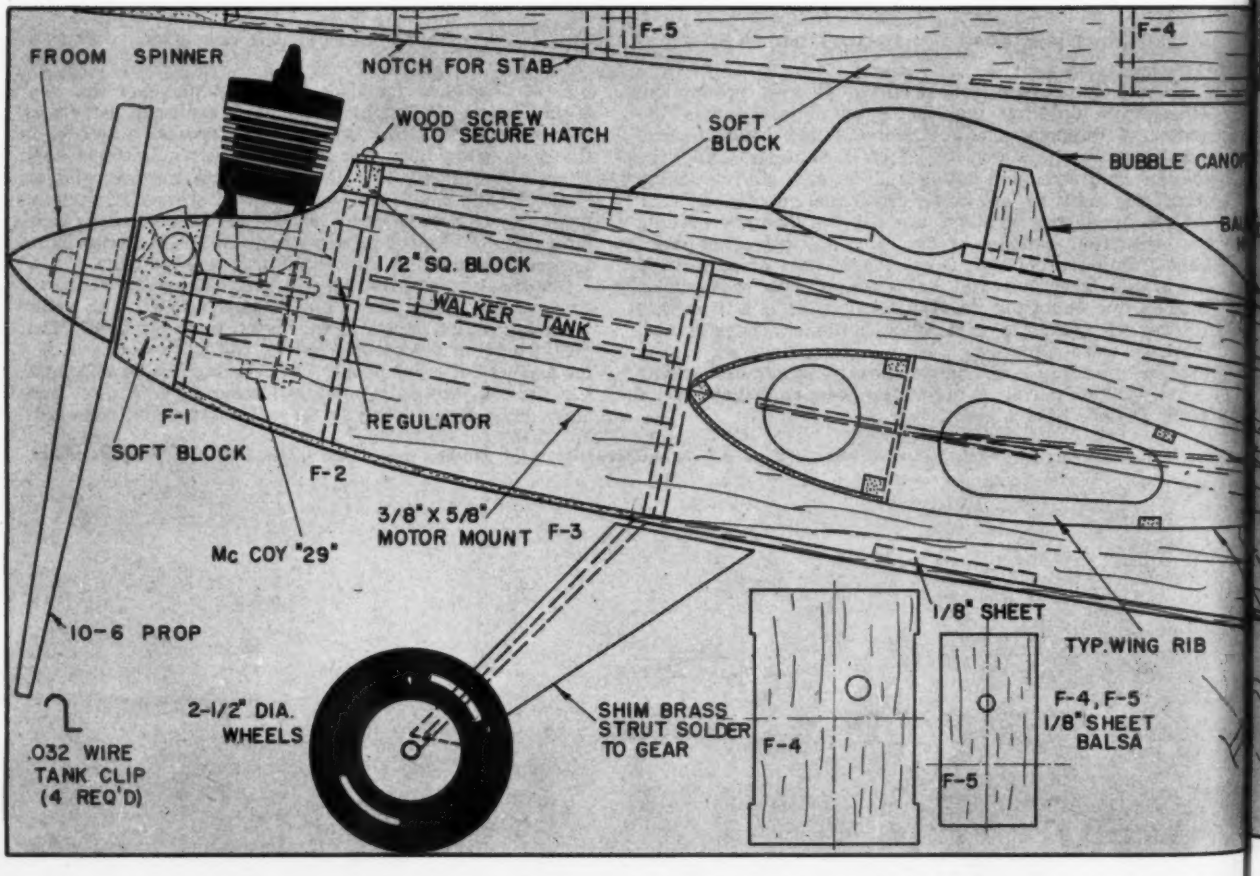
by FRANK CENTRELLA

Due to the current rage for AA engines, many people have forgotten that many thousands of larger engines are in active service and that, more importantly, it takes a larger engine than a "baby" for ideal performance. Allowing for the fact that the AA engine airplane is less expensive and flyable in small areas, the also popular .29 engines have their desirable points, especially in stunt.

Designed for such .29's as the McCoy, Forster, K & B, Veco, and so on, this stunt job represents the latest practices. It embodies all the commoner features to be found in fully stuntable, easy-to-fly machines and some other items, such as flaps and the Jim Walker tank for even running. If you are a hot stunt man and expect to fly in contests, by all means use the Walker tank. For ordinary flying, an ordinary wedge is suggested.

The over-all weight is 2 lb., with a 41" span and 10" chord. The airfoil is N.A.C.A. .0018T, 18% chord depth. Construction is extremely rugged, employing a four spar wing, sheet balsa flaps and wing leading edge sheet covered top and bottom. You will note that the stabilizer and elevator are of built up construction, using a symmetrical airfoil for improved flight characteristics. The fin and rudder are of conventional design, using hard sheet balsa. This rugged fin affords protection in case of nose overs. Nylon was selected as our covering material. Many modelers shy away from using nylon or silk. In comparing nylon to conventional covering the author feels that nylon or silk covering takes a wee bit longer but results are better.

The drawings are presented half size, and scaling up should not be difficult. For best results bring the three plates to their full size before attempting construction. Study all points carefully and then



proceed with the fuselage structure. Select even grain ⅛" x 3" x 36" hard balsa sheet, for the fuselage sides and cut to shape shown. Cement the ⅜" x ⅝" hard wood mounts to these sheet sides. While the mounts dry, cut the forward formers F-1, F-2, F-3, from ⅛" plywood. Before cementing in place cut away the airfoil hole, on either side of the fuselage through which the wing enters. Bring the tail end of the fuselage together and cement well. Add formers F-4, and F-5, as well as all the crossbraces, along with the 3/16" sq. runners. Check all points for proper alignment; set aside to dry.

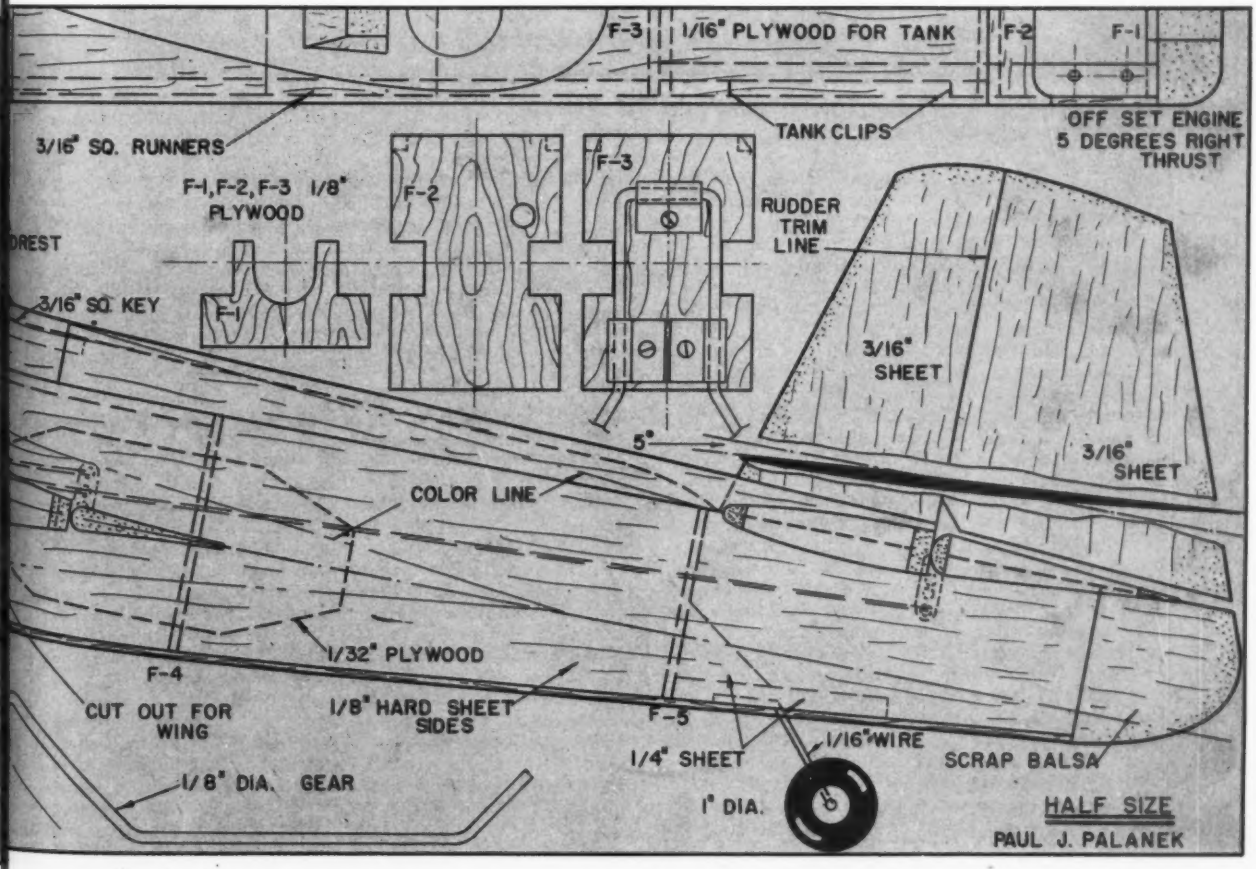
The landing gear is bent from ⅛" wire as shown to fit between the motor bearers. The gear is fastened in place, to former F-3 with three landing gear clips, and 5-40 bolts. Cement the nuts securely to prevent loosening. The tail wheel gear is formed from 1/16" dia. wire and cemented securely in place with bracing as shown in the drawing. At this point in construction set the fuselage aside as the wing must first be completed to further the fuselage assembly.

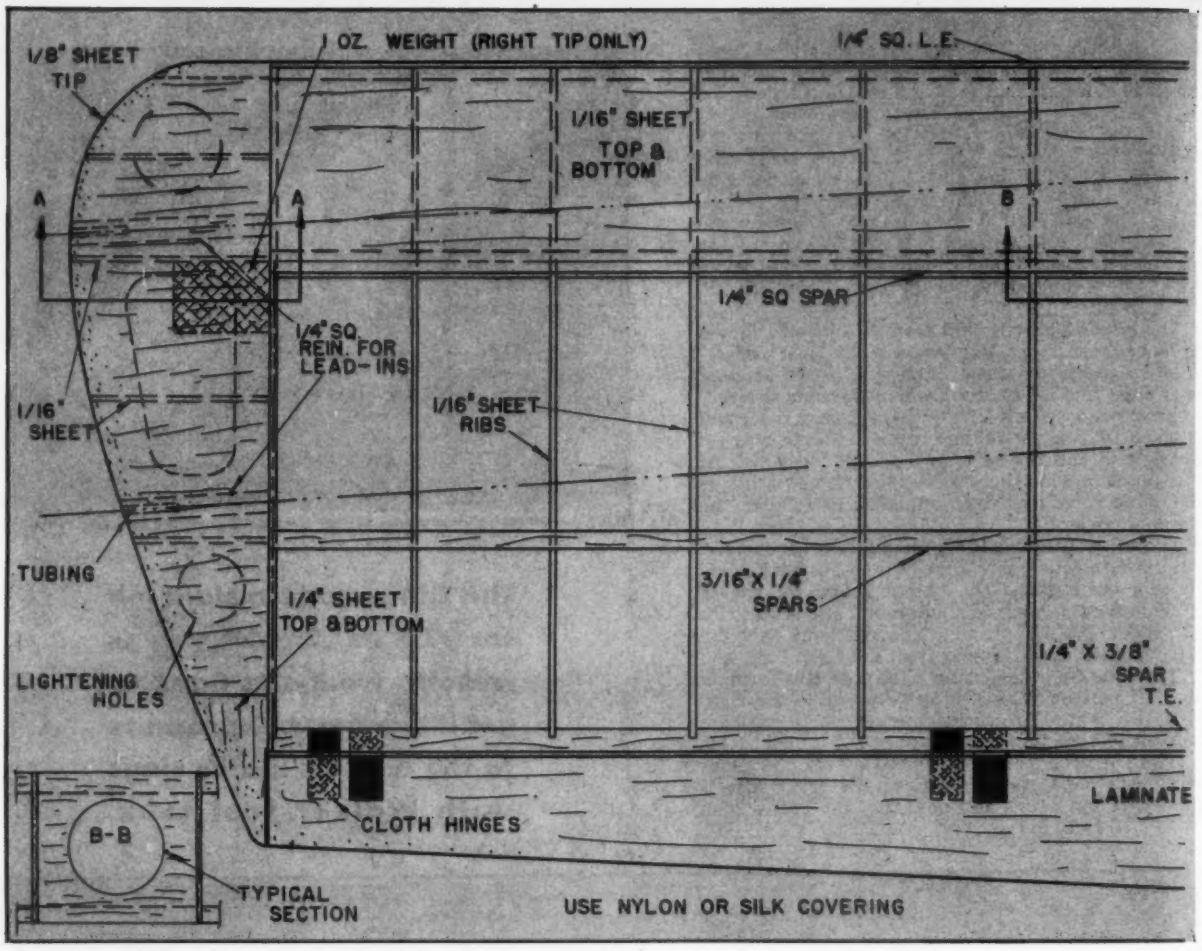
The wing structure is rugged and built for abuse. All balsa selection should be of medium hard quality and even grain. The author found the use of 3" wide sheet to give us a maximum amount of ribs per sheet. Use 1/16" sheet. You will note that the left wing is built 1" longer than the right half; add 1" from the tip out. Also note that the ribs forming the left half have lightening holes while the right half has none. An accompanying photo clarifies this bit of structure considerably.

Using a good flat work bench, cover the plans with wax paper for protection. The front spar is pinned to the bench and note that the entire span

No ugly barndoor, this job looks like an airplane. Flaps work opposite to flippers.

This ultra-modern stunt job for .29 to .35 engines is smooth, from the flaps to get it around those corners to the way its motor sings with Walker fuel tank.





is constructed at one time. Add all the 1/16" sheet ribs, blocking up the trailing edge. With the ribs partially dried, add the top ¼" sq. spar and the ¼" sq. leading edge. Notch the trailing edge, which is ¼" x ⅜" and slip in place, cementing well. The 3/16" x ¼" rear spars can now be added. While the wing assembly is drying, the ⅛" sheet balsa tips can be laid out and cut to shape. Bear in mind that the lightening holes appear on the left half of the panel only, none on the right half. Cement the tips in place. When completely dry remove from the work bench and add the wing tip gussets. A ⅛" O.D. tube is cemented to a ¼" sq. strip of balsa, which is grooved to receive it; two units are required, one for each lead cable. Cement securely to the left wing tip as shown.

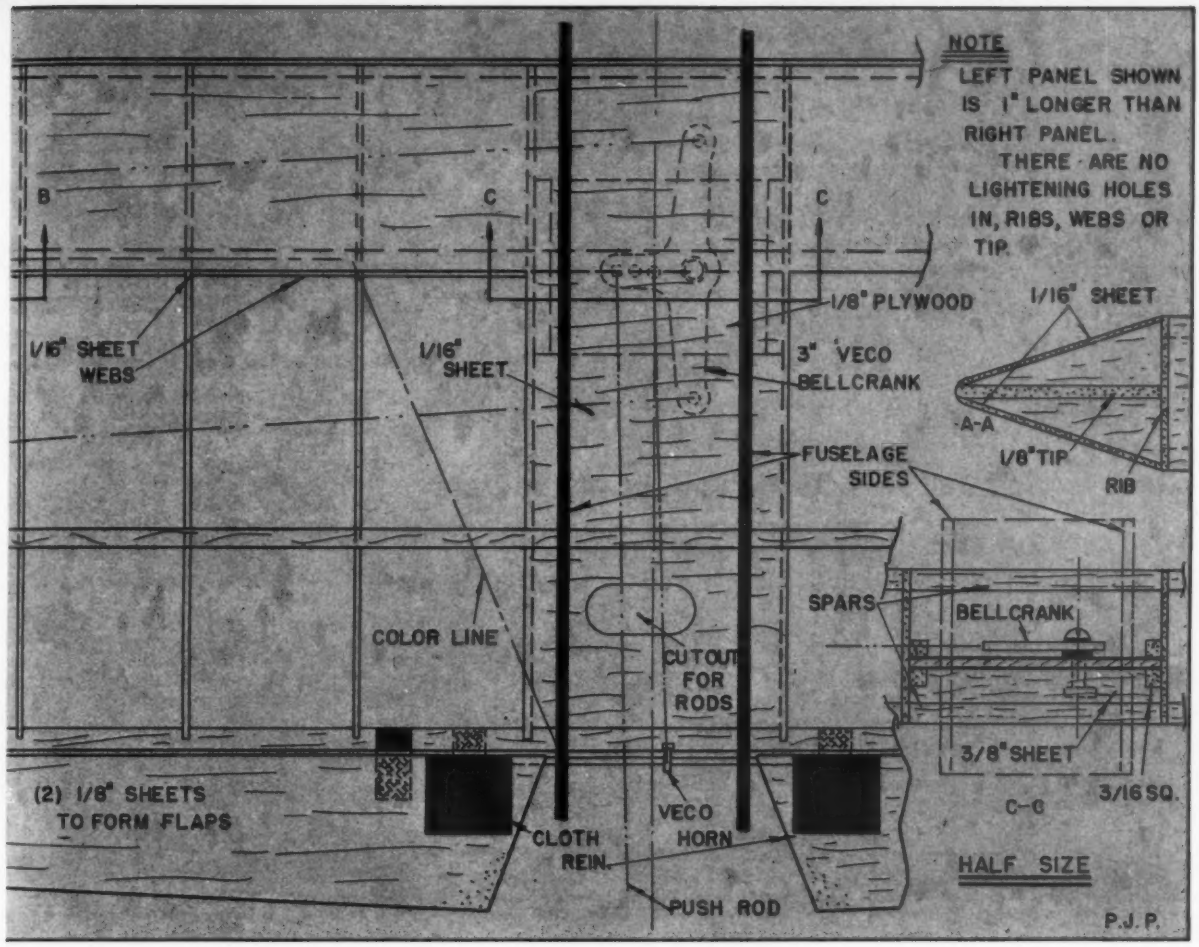
The bellcrank assembly is next. A ⅛" plywood platform is cemented as shown between the two center section ribs, reinforced with four strips of 3/16" sq. balsa. Add the bellcrank and bolt securely in place, then cement the ½" sheet to the lower half of the ⅛" plywood platform. Allow to dry thoroughly, then apply another coat of cement. The leading edge of the wing is 1/16" sheet covered, both top and bottom. With this done, add the 1/16" sheet webs in place between the ribs as shown. Here again holes appear only in the left half. Do not sheet cover the center section of the wing at this point of construction. Sand the spars, leading and trailing edges where needed.

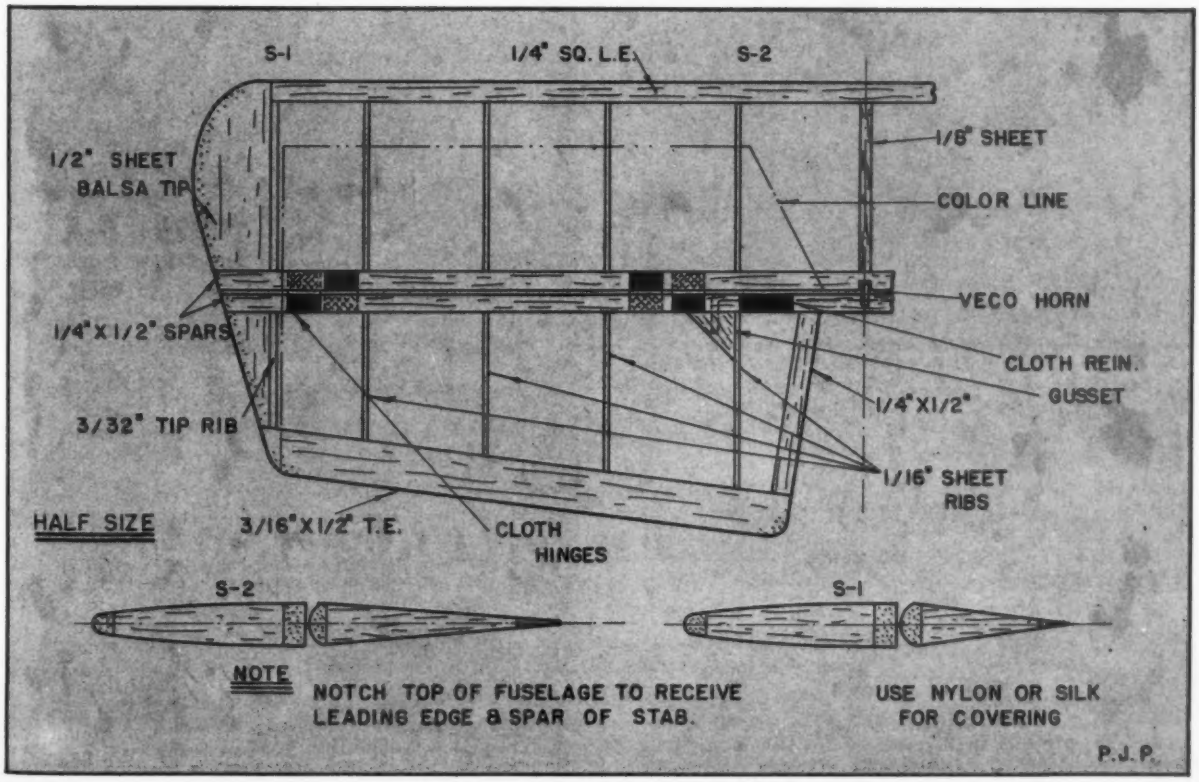
The wing flaps are simple to construct being made from two laminations of ⅛" sheet balsa. Bear in mind the left half of the wing is 1" longer and should be allowed for in flap construction. A Veco horn is cemented in place to each half of the flap and bound securely with cloth reinforcement. Do a neat sanding job on the flaps, as this will add to the efficiency and appearance of the model. Give the flap one coat of dope and then slip in the fuselage opening.

The wing can now be slipped into the fuselage after a little jockeying. The wing temporarily set in position, cement the cloth hinges in proper position to the flap and wing. Be sure there is ease of motion both up and down. The 1/16" dia. pushrods are soldered in place; for the elevator, the hole furthest from the crank pivot is used. The hole closest to the pivot is used for the flap. The top hole in the flap horn is also used. The flexible lead-in cables are then sent through the ⅛" tubing at the tip, and through the ribs, to the bellcrank. The Pylon Brand, 21 strand flexible lead cable was used. The center portion can be sheet covered and then the wing cemented securely in place.

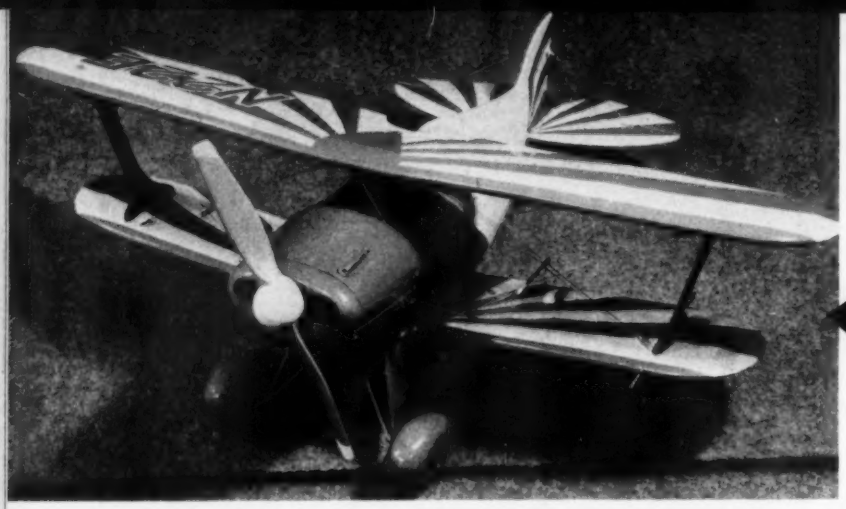
You will note the stabilizer and elevator assembly is of built up design, which proved to be very efficient and light. The entire tail surfaces are built at one time. Pin both spars to the bench as well as the leading and trailing edges. The center rib is ⅛" sheet, the tip rib 3/32" sheet, and the balance 1/16" sheet. Cement all these securely in place. Add the ¼" x ½" strip balsa from spar to trailing edge. Soft balsa blocks are used for the tips. When the tail assembly is dry, remove from the bench and sand all needed surfaces. A Veco horn is cemented to the elevator and bound securely with cloth. Cloth is also used to hinge the elevator to the stab assembly.

Before cementing the above assembly in place, notch the fuselage so the leading edge and the spar settle into it, also attach the loose end of the push rod to the lower hole in the horn. The stabilizer can now be cemented to the fuselage. Completing the wing should be our next step. Add the 1/16" sheet balsa covering to both tips and sand smooth. Note grain direction. Before covering the wing, apply a coat of clear dope to all surfaces that covering will come in contact with. Wet down the nylon and stretch in place, holding *(Continued on page 43)*


NOTE
LEFT PANEL SHOWN IS 1" LONGER THAN RIGHT PANEL.
THERE ARE NO LIGHTENING HOLES IN, RIBS, WEBS OR TIP.
B
C
C
1/16" SHEET WEBS
1/16" SHEET
1/8" PLYWOOD
3" VECO BELLCRANK
FUSELAGE SIDES
COLOR LINE
CUTOUT FOR RODS
(2) 1/8" SHEETS TO FORM FLAPS
CLOTH REIN.
VECO HORN
PUSH ROD
1/16" SHEET
A-A
1/8" TIP
RIB
SPARS
BELLCRANK
3/8" SHEET
3/16 SQ.
C-C
HALF SIZE
P.J.P.


S-1
1/4" SQ. L.E.
S-2
1/2" SHEET BALSA TIP
1/8" SHEET
COLOR LINE
VECO HORN
1/4"X1/2" SPARS
CLOTH REIN.
GUSSET
1/4"X1/2"
3/32" TIP RIB
1/16" SHEET RIBS
HALF SIZE
3/16"X1/2" T.E.
CLOTH HINGES
S-2
S-1
NOTE
NOTCH TOP OF FUSELAGE TO RECEIVE LEADING EDGE & SPAR OF STAB.
USE NYLON OR SILK FOR COVERING
P.J.P.

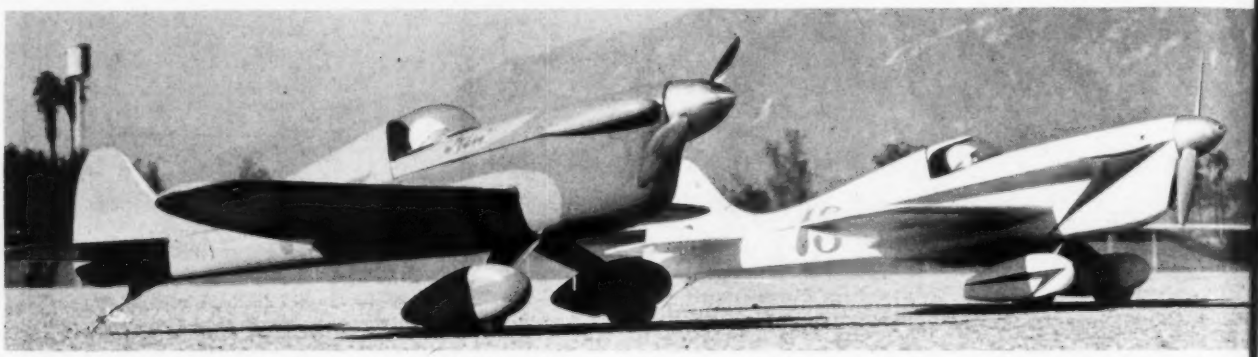
AIR WAYS



AMCO 3.5 cc powered Little Stinker, Peter Donavan-Hichie, England. Silk covered, 21 oz. wgt.

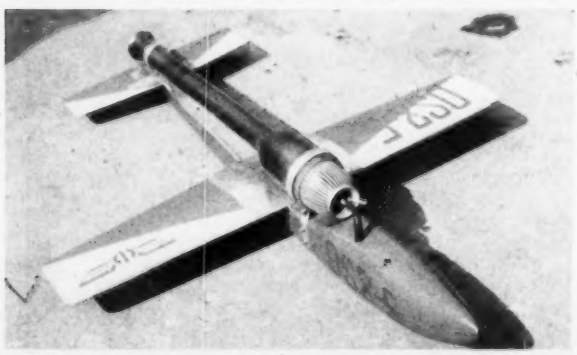
THIS MONTH'S $10 WINNER

Cream of the crop of model pictures sent in by readers appears in Air Ways each month. Perhaps you, too, have something to brag about?



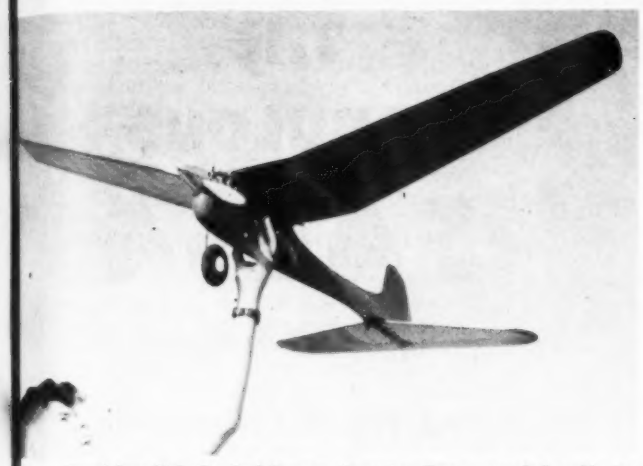
Close-up of Panko brothers' beautiful team racers should inspire builders who like realism in their U-control. Ships a familiar sight in Southern Cal.

At Tangerine Internationals held last winter in Florida, Alberto Ruiz Vela, Mexico, flew his Flamenco Pylon to a first place in Class C free flight.



Japanese jet, by S. Ogawa, Osaka, features power plant manufactured by Ogawa's own factory. Ogawa also makes wide variety gas motors.

When at sea, James Davidson, USN, builds models like this 6' Class D towliner. Assembles it in port. Entered contest, won same with 12:53 time.

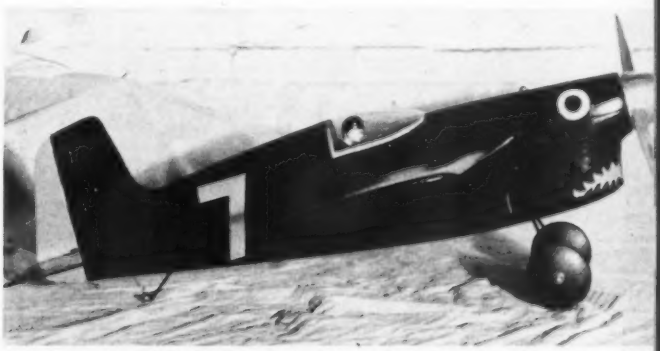


Novel free flight by Carl Hermes, Arlington, Texas, uses balsa skin top on wing, stab; climb control: two-angle stab, tab setting, by timer.

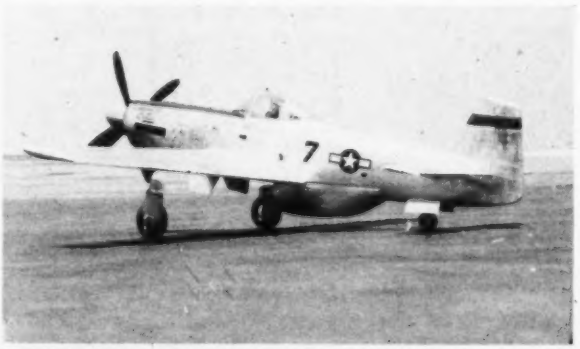
Nifty Arden .19 powered Fokker Tripe is work of Dick Grandel, one of California's top speed merchants. Ship flown at the last internationals.

Slow, scale-type flight was goal of Frank Wetherell, who powered 42" original with Anderson .045 Spitfire. Note reflections from underside of wing.

Work of a year went into this fast flying Grumman F2F-1. Builder Joe Iacobrica, Wallaston, Mass. says it can do 90 mph on its Fox 35 engine.



Able Mable, built from MAN plans by D. MacGregor, Nutley, N. J. is a honey of a flier. With a Dooling 29, it hits 100 or more when engine peaks.



Amazingly lifelike P-51 built by Dick Tichenor, Nashville, Tenn., has aluminum foil covering over balsa planking, Cyke in scoop with 13" shaft.

Crop dusting Piper Cub Cruiser makes a steady, fast flying sport job. Bob Warming, Bismarck, N. D. turned out fine piece of work in spare time.

Gaily colored Navy F4B-4 typified romantic biplane at its best. Note color scheme below.

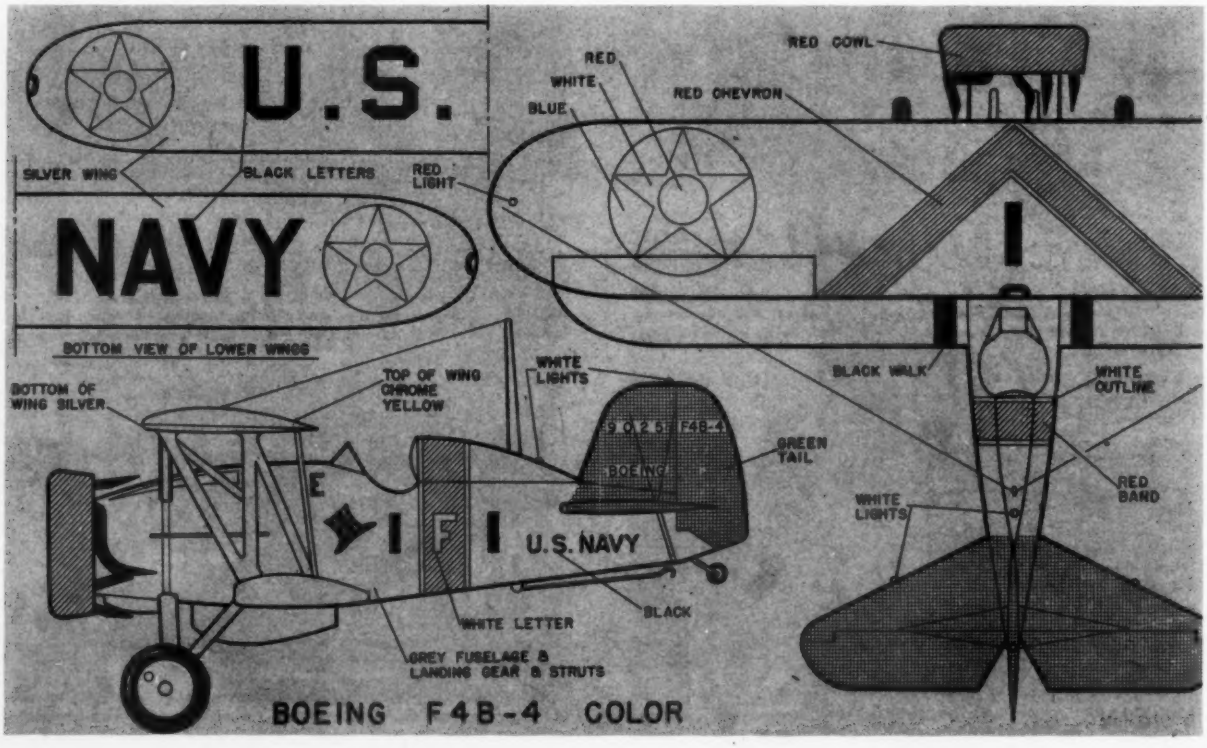
THE FABULOUS F4B-4

by WALTER MUSCIANO

Part Two of this modeler's dream ship completes the wings, gives authentic color schemes to wow the judges

Now that we have completed the fuselage and empennage assemblies of this one-inch-to-the-foot scale model of this famous single seater of the early '30's, construction of the wings is next in line.

Cut the wing ribs from medium balsa. Now notch the leading and trailing pieces to fit the ribs snugly. The plywood lower wing dihedral brace or joiner is cemented well to the leading edges of all three lower wing panels. When dry, cement the ribs into the leading edge notches and add the trailing edge. The upper wing is much simpler to construct because it does not have dihedral. Soft balsa is used for the wing tips because these are non-structural items and also for ease of carving. It should be noted that the leading and trailing edges as well as the wing tips are assembled without being carved to shape. When the wing assemblies are thoroughly dry, the above mentioned items are carefully carved to their proper shape with the use of a razor plane, sharp knife (Xacto No. 26) and razor blade. When completed (see plans for proper shape), sand the entire wing framework until smooth and recement all joints. Both wings are covered with heavy Silkspan. We used a very slow drying cement for the adhesive; however, a mixture of cement and clear dope proves well suited for the purpose. The covered wing will possess greater strength and the covering is less likely to puncture from handling if it is applied with the grain running spanwise. A fine water spray should be applied to the covered wings and when thoroughly dry and free from wrinkles, the wings should receive three coats of unthinned clear dope followed by two coats of 50% thinned clear dope. Sand very lightly with worn out fine sandpaper.



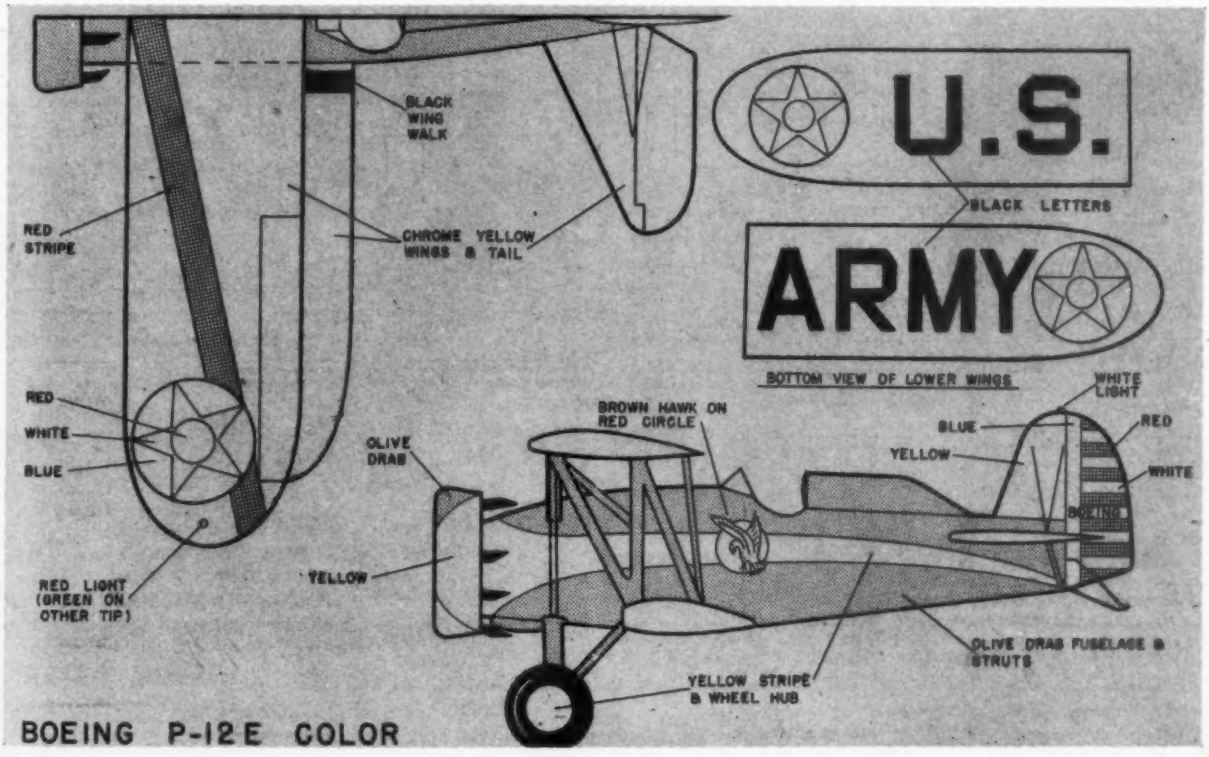
The lower wing is now cemented to the fuselage bottom. Use plenty of cement and be certain that the wing is set at 0° incidence angle. While this is drying cut the hardwood interplane struts and shape to a streamline cross section. Note the extra length of some struts plus the sharpened ends. The model is now ready for painting or perhaps you care to do this: in view of the fact that the full scale prototype possessed corrugated tail surfaces, we decided to duplicate this appearance on our model. The task is much easier than it looks. After the model is completely wood filled, carefully wrap the tail surfaces with heavy carpet thread and then liberally apply several coats of wood filler over the entire surface. When dry, cut away the thread at the control hinge line to facilitate movement of the control surfaces. Easy, wasn't it? Now paint.

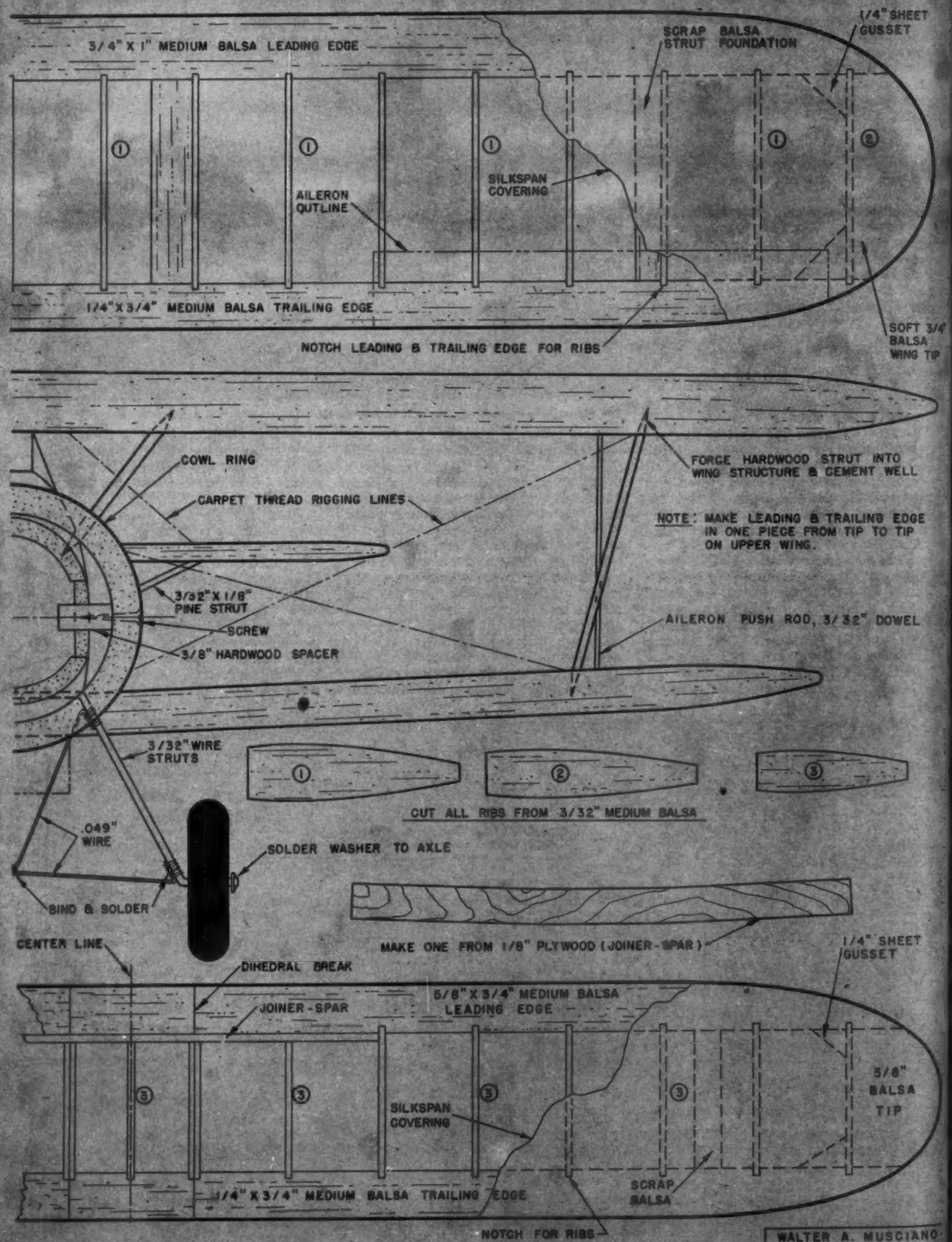
By this time you should have decided whether your model will be the Navy F4B-3 or F4B-4 or the Army P-12E. The plans in Part I of this article described the structural differences of these airplanes and this final installment contains plans describing the color schemes. Both Army and Navy colors are taken from famous squadrons. The famous VF-1 "High Hat", Navy Fighting Squadron I colors and insignia were reproduced on our prototype model and they are certainly eye-catching colors. We would suggest that those builders who prefer Army craft paint their P-12E the colors of the renowned 27th Pursuit Squadron ("Diving Hawk") based at Selfridge Field, Michigan.

Paint the model before the upper wing is attached. Always apply the light colors first and then follow with those colors that are progressively darker. We prefer using several coats of very thin dope to a few thick coats. A spray gun is not necessary to achieve a good finish although it certainly helps. We used a brush. Always use masking tape when separating colors on the plane. Be sure the tape has a clean edge and use a new piece each time. When it comes to insignia, striping, lettering and other trim of this type nothing compares with Trim-Film. This product merely is a sheet of solid color decalcomania that can be cut into many various patterns to the fancy of the builder. It is then immersed in warm water and slid off onto the model.

When the basic painting has been completed, the craft should be rubbed carefully with rubbing compound and soft cloth; then the trim can be added. The interplane struts should be fastened to the lower wing at this time, set at the proper angle. Attach the upper wing securely, forcing the struts into the structure and applying plenty of cement. When cement is dry, the rigging, telescopic gun sight, windshield, and (*Continued on page* 46)

The plane that began it all, the 1928 Boeing model 83, the F4B-1. See Army colors below.




3/4" X 1" MEDIUM BALSA LEADING EDGE
1/4" SHEET GUSSET
SCRAP BALSA FOUNDATION
AILERON OUTLINE
SILKSPAN COVERING
1/4" X 3/4" MEDIUM BALSA TRAILING EDGE
SOFT 3/4" BALSA WING TIP
NOTCH LEADING & TRAILING EDGE FOR RIBS
COWL RING
CARPET THREAD RIGGING LINES
FORGE HARDWOOD STRUT INTO WING STRUCTURE & CEMENT WELL
NOTE: MAKE LEADING & TRAILING EDGE IN ONE PIECE FROM TIP TO TIP ON UPPER WING.
3/32" X 1/8" PINE STRUT
SCREW
3/8" HARDWOOD SPACER
AILERON PUSH ROD, 3/32" DOWEL
3/32" WIRE STRUTS
CUT ALL RIBS FROM 3/32" MEDIUM BALSA
.049" WIRE
SOLDER WASHER TO AXLE
BIND & SOLDER
MAKE ONE FROM 1/8" PLYWOOD (JOINER-SPAR)
CENTER LINE
DIHEDRAL BREAK
JOINER-SPAR
5/8" X 3/4" MEDIUM BALSA LEADING EDGE
1/4" SHEET GUSSET
5/8" BALSA TIP
SILKSPAN COVERING
1/4" X 3/4" MEDIUM BALSA TRAILING EDGE
SCRAP BALSA
NOTCH FOR RIBS
WALTER A. MUSCIANO

official AMA news

by RUSS NICHOLS and CARL WHEELEY

It's been a busy month with rules' changes in Team, Wakefield, Radio, dope on the Nats. There is also a complete Contest Calendar.

As much as we would like to announce the final decision on the Nationals, a last minute check at the time of writing indicates that a few more days are required by the Navy. For apparent reasons, the Nats must not be held on any station where we would interfere with Navy training and ferrying operations. During a conference at the Pentagon a couple of days ago, Rear Admiral R. F. Hickey, Navy's Chief of Information, told us that we could be certain that the Navy would be host of the 1951 Nats at some location, even if they had to sweep out the Pentagon and hold it there! Special notices will be sent out from AMA Headquarters the minute word is received on the location. The dates, as usual, will be from July 23 through 29 in order to include the fifth weekend in that month, thereby allowing the Navy their required four weekends of training per month.

The 6th Annual Mirror Model Flying Fair has been scheduled to be held June 3rd at Grumman Field, Bethpage, L. I., N. Y. A special highlight at this year's MMFF will be the U.S. Navy Carrier Event which will be held there for the first time.

For those of you who are not familiar with the Navy's event, it was brought about with the idea of having controline models show a greater resemblance to the flight characteristics of full size Navy craft. Models will be judged for take-off from a simulated carrier deck, high speed combined with fast acceleration, low speed and landing. There are no design restrictions except that models are not to exceed 58" in length, 17" in height, and have a wing span no greater than 58". A complete set of the rules may be obtained by writing Lt. John H. Burton, Navy Public Relations, 4D-720, Pentagon, Washington 25, D. C.

In the way of a correction, the Mirror Model Flying Fair is to have two PAA Load events but they are to be Class AA and Class AB, not Class A and Class B as listed on the entry blanks. If you entered the Mirror Meet and have not registered for the AA PAA Load event and want to, be sure to do so at the field because there will be an AA PAA Load event.

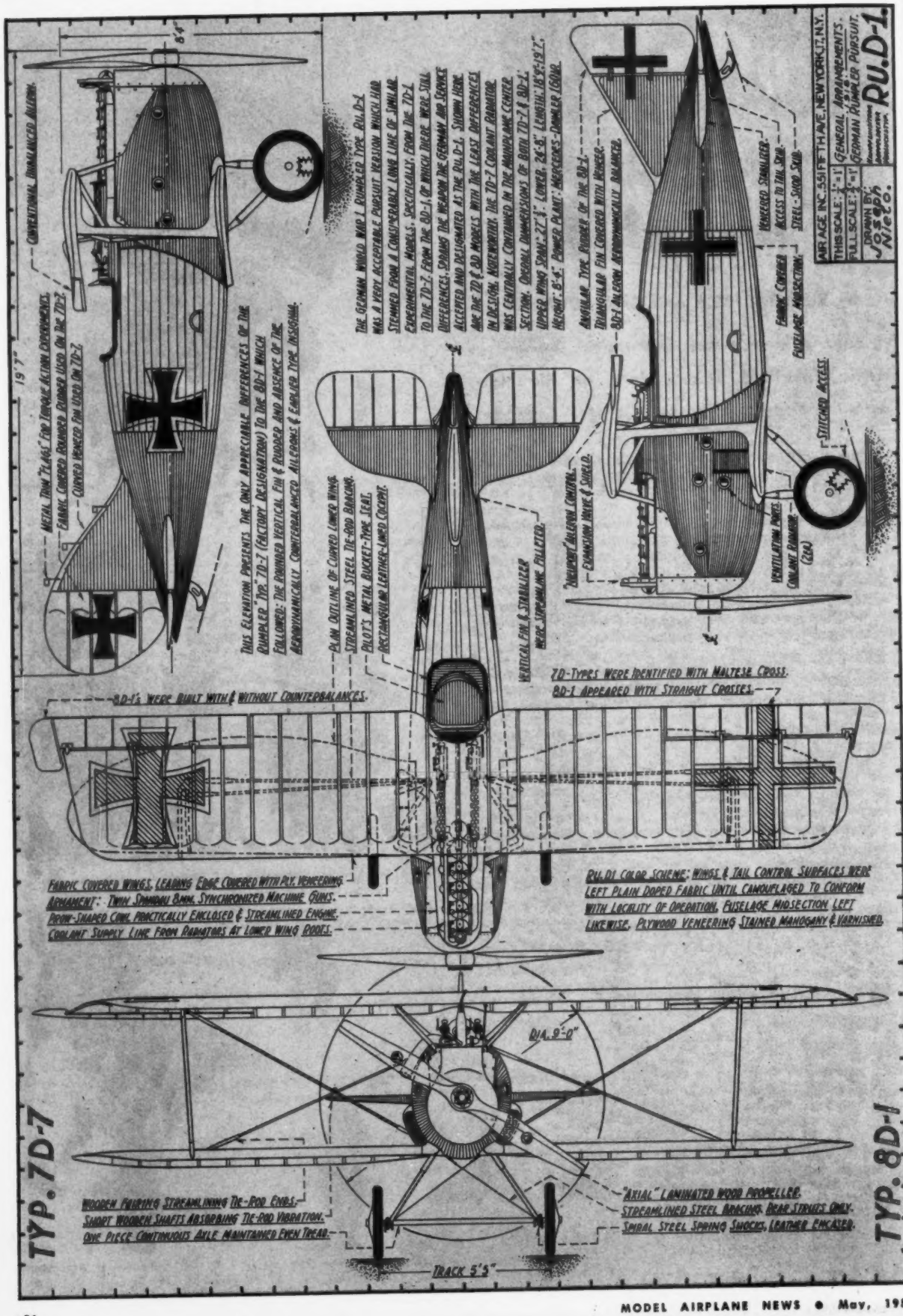
A check with the Statement of Income and Expenses for 1950 submitted by Secretary-Treasurer, Frank B. Bushey, shows that the expenses can be subtracted from income leaving a figure in the black. This was due to the fact that operating expenses were kept to a minimum during the year enabling Headquarters to keep under the budgeted amount. Any AMA member can obtain a complete copy of the Treasurer's report by writing AMA.

The Tangerine Internationals, held for the first time last December at Orlando, Fla., under Exchange Club sponsorship, promises to (*Continued on page* 48)

Lew Mahieu, Coast speed and free flight expert with his newly designed .099 Zeek (277 sq. in.). Note fuse dethermalizer hanging at rear.

Fred Wilson flies son (holding model), friends Pat Boyle and Ron Bennett, to meets. Boys are members of the Junior San Valeers club.

Notable pair—Johnny Brodbeck (K & B), left, talks it over with Denny Davis, here holding his .32 Torp-powered San De Man free flight.


AIRAGE INC. 551 FIFTH AVE. NEW YORK 17, N.Y.
THIS SCALE: 1"=1'
FULL SCALE: 1"=1'
DRAWN BY: Joseph Nicpon.
GENERAL ARRANGEMENTS.
GERMAN RUMPLER PURSUIT.
RU.D-1.
THE GERMAN WORLD WAR I RUMPLER TYPE RU.D-1 WAS A VERY ACCEPTABLE PURSUIT VERSION WHICH HAD STEMMED FROM A CONSTABARC LONG LINE OF SIMILAR EXPERIMENTAL MODELS, SPECIFICALLY, FROM THE 7D-1 TO THE 7D-7. FROM THE 8D-1, OF WHICH THERE WERE STILL DIFFERENCES, SPRANG THE WEAPON THE GERMAN AIR SERVICE ACCEPTED AND DESIGNATED AS THE RU.D-1. SHOWN HERE ARE THE 7D & 8D MODELS WITH THE LEAST DIFFERENCES IN DESIGN. NOTEWORTHY THE 7D-7 COOLANT RADIATOR WAS CENTRALLY CONTAINED IN THE MONOPLANE CENTER SECTION. OVERALL DIMENSIONS OF BOTH 7D-7 & 8D-1: UPPER WING SPAN: 27'3"; LOWER: 24'8"; LENGTH: 18'5"; 19'2"; HEIGHT: 8'4"; POWER PLANT: MERCEDES-DUMBLER 160HP.
ANGULAR TYPE RUDDER OF THE 8D-1.
TRIANGULAR FIN COVERED WITH WOOD.
8D-1 AN EVEN AERODYNAMICALLY BALANCED.
VENEERED STABILIZER.
ACCESS TO THE SPAR.
STEEL-SHOD SKID.
FABRIC COVERED FUSELAGE MIDSECTION.
STITCHED ACCESS.
"NEWPORT" CONTROL CONSTRUCTION.
CONNECTION HOOKS & SHIELD.
VENTILATION HOLES.
COOLANT RUNNER. (2EA)
VERTICAL FIN & STABILIZER WERE STREAMLINE FILLETED.
PLAN OUTLINE OF CURVED LOWER WING.
STREAMLINED STEEL TIE-ROD BRACING.
PILOT'S METAL BUCKET-TYPE SEAT.
RECTANGULAR LEATHER-LINED COCKPIT.
7D-TYPES WERE IDENTIFIED WITH MALTESE CROSS.
8D-1 APPEARED WITH STRAIGHT CROSSES.
8D-1's WERE BUILT WITH & WITHOUT COUNTERBALANCES.
FABRIC COVERED WINGS, LEADING EDGE COVERED WITH PLY VENEERING.
ARMAMENT: TWIN SPANDAU 8MM. SYNCHRONIZED MACHINE GUNS.
PROW-SHAPED COWL PRACTICALLY ENCLOSED & STREAMLINED ENGINE.
COOLANT SUPPLY LINE FROM RADIATORS AT LOWER WING ROOTS.
RU.D1 COLOR SCHEME: WINGS & TAIL CONTROL SURFACES WERE LEFT PLAIN DOPED FABRIC UNTIL CAMOUFLAGED TO CONFORM WITH LOCALITY OF OPERATION. FUSELAGE MIDSECTION LEFT LIKEWISE. PLYWOOD VENEERING STAINED MAHOGANY & VARNISHED.
DIA. 9'-0"
TYP. 7D-7
TYP. 8D-1
WOODEN FAIRING STREAMLINING TIE-ROD ENDS.
SHORT WOODEN SHAFTS ABSORBING TIE-ROD VIBRATION.
ONE PIECE CONTINUOUS AXLE MAINTAINED EVEN TREAD.
"AXIAL" LAMINATED WOOD PROPELLER.
STREAMLINED STEEL BRACING. REAR STRUTS ONLY.
SPIRAL STEEL SPRING SHOCKS. LEATHER ENCASED.
TRACK 5'5"

One of the sleekest fighters built during the conflict, the D-1 was remarkably well streamlined.

RUMPLER D-1

WORLD WAR I

When the German Imperial Air Service told Rumpler to build the super fighter, the extraordinary D-1 pursuit resulted.

by ROBERT HARE

Had World War I lasted into 1919 or 1920, the Rumpler D. I. undoubtedly would have seen service with the German Imperial Air Service. It was, however, developed too late to reach combat. It was the result of two years experimentation by engineers of Rumpler-Werke A. G., at Johannisthal, who had as their assignment the development of a super fighter, an aircraft so superior to Allied types that it could be called upon to support Germany's desired victory.

In this quest for a super-plane, Rumpler engineers were given a relatively free hand in design and engineering. They were permitted to dream—to design their dream ship and the structures they evolved were little less than fantastic in the practical sense. The D. I., was as sleek a single seat fighter as was produced by any of the belligerent nations during that conflict.

In all, 49 of these super planes were designed and built. Twenty-two were constructed before the Armistice on November 11, 1918, and 27 were completed afterward as research or sport planes, without armament.

Probably no other manufacturer of the 1914-1918 period was permitted to go so far experimentally as was Rumpler-Werke. Perhaps German authorities permitted this deviation from the general call to produce for combat because of the excellent planes this organization had already produced, and because of the position of the firm's founder, Dr. Ernst Rumpler, in the pioneering development of German aviation.

Ahead of its time, the Rumpler pursuit had such later day features as flush type wing radiator.

Ernst Rumpler was at one time chief engineer of the Daimler Motoren Gesellschaft. This organization was one of the established automobile makers in Germany, and when flying gathered momentum, produced engines for aircraft. Both cars and aircraft engines were produced under the trade name Mercedes. It was customary in the early days of aviation for almost any graduate engineer to become interested in aviation, and become an authority thereon. There were no aeronautical engineers as such, and the science was so embryonic that any trained engineer could bone up on what was known of aviation, apply what physical laws were known to be concerned, and call himself an aeronautical engineer.

Many did this, but few with so much success as Rumpler. While still employed by Daimler, Rumpler caught up with aviation, edited the German Aero Club Handbook, and finally struck out on his own after acquiring manufacturing rights for the Etrich Taube. Using the same aerodynamic design, but altering the structure, Rumpler began producing the Rumpler Taube in small quantities. He did away with the under-bridging of the Etrich wing, and replaced the Etrich wing-warping with conventional ailerons. With pilot Linnekogel at the controls, the Rumpler Taube set new altitude records.

Shortly thereafter, Rumpler built his first biplane—with fuselage made of steel tubing—in which the German pilot Basser performed his 18 hr. endurance record and made his famous Berlin-Budapest-Sofia-Constantinople flight non-stop excepting the three capitals. This was quite a feat in those days, and proved the efficiency of the biplane.

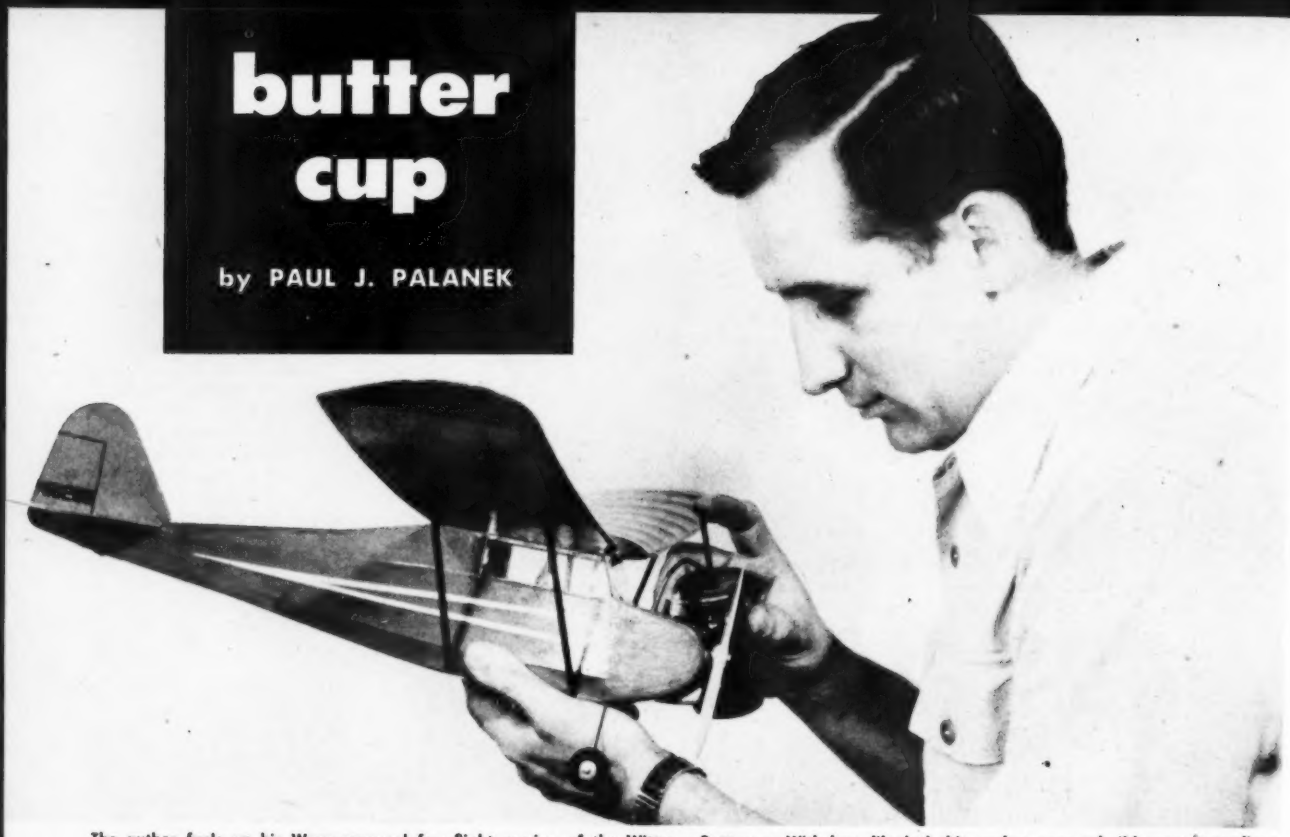
When World War I began, Rumpler of course was in line to produce military aircraft needed by Germany. Expansion of his faculties was rapid and he produced 17 type A planes, 198 type B, and 2,373 C type ships. The latter are well known as Germany's standard observation craft. Ernst Rumpler's factory also produced 58 G type aircraft, the Ru. G. I. being the first German type to carry the designation—"grossflugzeug" or large flying machine."

The original of the final Ru. D.I. was a sleek little single seater which might be classed as a flying laboratory. What its flight characteristics were is not a matter of record. It was apparent, however, that the first consideration was that of minimizing resistance to gain the utmost speed.

This first ship was identified by the factory (*Continued on page* 46)

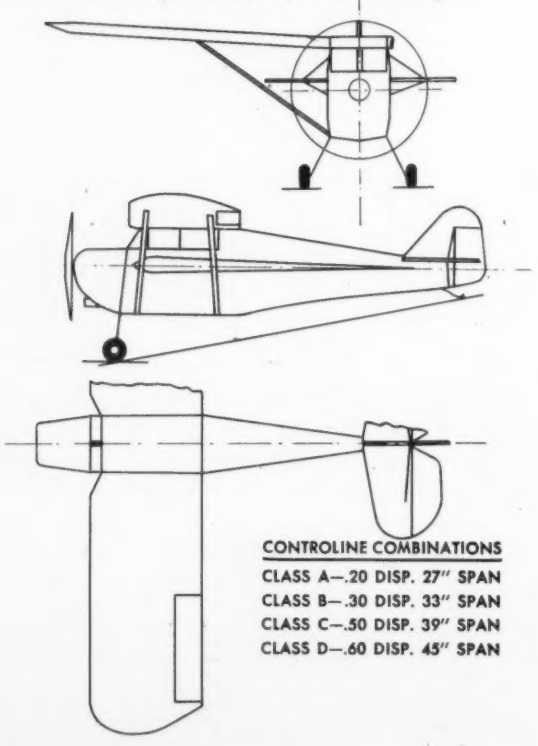
butter cup

by PAUL J. PALANEK



The author fuels up his Wasp-powered free-flight version of the Wittman Buttercup. With less dihedral ship makes easy-to-build sport controliner.

Steve Wittman's fast cabin job has what it takes for a good flying model, whether yo-yo or free flight



CONTROLINE COMBINATIONS

CLASS A—.20 DISP. 27" SPAN
CLASS B—.30 DISP. 33" SPAN
CLASS C—.50 DISP. 39" SPAN
CLASS D—.60 DISP. 45" SPAN

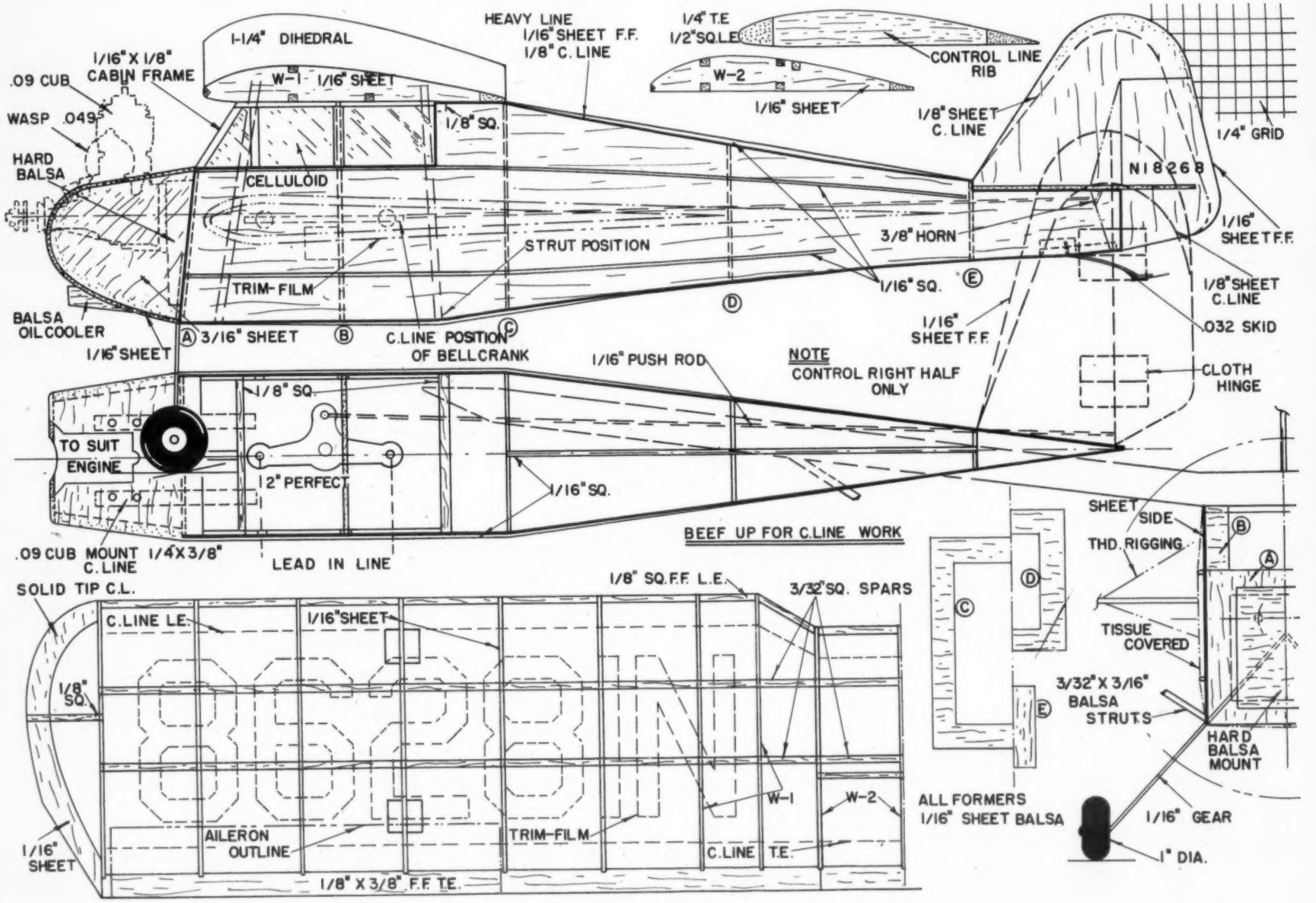
Our model presentation of *Buttercup* is but one of many of Steve Wittman's accomplished designs. The design originated in 1938, and the model presented here is a two-place airplane. Mr. Wittman also built a four-place model. Both were for his own use. The two-place is powered by a Continental C-85 hp engine and cruises at 130 mph, lands at 30 mph. The speed king's four-place is powered by a 150 hp Franklin.

Mr. Wittman originated the unique landing gear which is made of tapered steel rod and tempered for greater strength. The design permits the gear to flex fore and aft as well as up and down. Many of today's light planes carry this arrangement, the difference being tempered plate replacing the rod. Incidentally, as this article is being written, we have word from Mr. Wittman in Wisconsin that a new and better *Buttercup* is on its way.

The ship is ideal for several types of model flying. Drawings show an AA f.f., class A controline, and a three-view with a call out for varied engine displacements. The three-view is for hot engine addicts. Your selection of model should be beefed up proportionate to the engine displacement.

The working drawing presented here is for construction of an AA free flight, .02 to .049 displacement, or Class A controline .074 up to .19 displacement. The photos show *Buttercup* mounting a Wasp .049 and is built for free flight work. In any event, drawing enlargement is required.

All balsa should be medium hard. Fuselage construction is started by butt cementing two 1/16" sheets; then trim to heavy line shown. Bulkheads A, B, C, D, E are cut from 1/16" sheet. Cement A, B, C, in place; pin to hold secure, and then add D and E. The entire cabin structure is of 1/16" x 1/8" strip balsa; add the 1/8" crossbraces on both top and bottom of fuselage. The 1/16" stringers are now added, and sanded to feather edges at the tail end of the fuselage as shown. Mounting the Wasp is a simple matter. Trim a hard balsa block to the angle shown in the side view, then position the engine on this block and drill mounting holes. Cement the nuts securely in place to the back of the block. Before mounting this unit in place, shape the gear from 1/16" wire (*Continued on page* 47)


1-1/4" DIHEDRAL
HEAVY LINE
1/16" SHEET F.F.
1/8" C. LINE
1/4" T.E
1/2" SQ. L.E.
CONTROL LINE RIB
W-2
1/16" SHEET
1/16" X 1/8" CABIN FRAME
.09 CUB
WASP .049
W-1 1/16" SHEET
1/8" SQ.
1/8" SHEET C. LINE
1/4" GRID
HARD BALSA
CELLULOID
N18268
1/16" SHEET F.F.
3/8" HORN
STRUT POSITION
TRIM-FILM
1/16" SQ.
1/8" SHEET C. LINE
BALSA OILCOOLER
1/16" SHEET
A 3/16" SHEET
B
C.LINE POSITION OF BELLCRANK
C
1/16" SHEET F.F.
.032 SKID
1/16" PUSH ROD
NOTE
CONTROL RIGHT HALF ONLY
CLOTH HINGE
1/8" SQ.
TO SUIT ENGINE
12" PERFECT
1/16" SQ.
BEEF UP FOR C.LINE WORK
.09 CUB MOUNT 1/4 X 3/8"
C. LINE
LEAD IN LINE
SOLID TIP C.L.
1/8" SQ. F.F. L.E.
3/32" SQ. SPARS
C.LINE L.E.
1/16" SHEET
1/8" SQ.
SHEET SIDE
THD. RIGGING
TISSUE COVERED
3/32" X 3/16" BALSA STRUTS
HARD BALSA MOUNT
ALL FORMERS 1/16" SHEET BALSA
1/16" GEAR
1" DIA.
AILERON OUTLINE
TRIM-FILM
W-1
W-2
C.LINE T.E.
1/16" SHEET
1/8" X 3/8" F.F. T.E.

design detail

Free Flight . . .

Bored? In a rut? Won't be if you can design and fly your own. Try one of these novel suggestions. They'll fly.

by H. A. THOMAS

For a full measure of modeling satisfaction, try designing and building your own free flight gassies. If you are a beginner, the suggestion still goes because the ultra-simple midget glo-engines makes the job a fairly easy one.

Say you want to built a simple, flyable model for an AA engine, one of perhaps 36-40" span with a minimum of materials and constructional problems. Figure A outlines such a model. Note its general proportions based on wingspan. If yours is a larger Class A engine, you may start with a 50" span; for class B, say, 60" span. Our construction outlined here is best suited to smaller engines however.

You'll first want to rough out some simple sort of building plan on wrapping paper or whatever may be handy. Do this sketchily, figuring the areas and lengths as suggested and finally winding up with patterns from which to cut the fuselage sides, tail parts, ribs, formers, etc. Make the wing in one piece, flat, and cut it apart at the center. Prop it to correct dihedral; reinforce the center joints and cement thoroughly. Bind or bolt the gear to the former near the wing leading edge before you assemble the fuselage. Tail parts are sanded smooth, edges being rounded at front and tapered toward the rear. These may be cemented permanently, with small tabs provided for flight trim adjustments. Install the engine to the plywood front former, cutting whatever access holes for the tank that may be necessary. Add dowels to retain the wing rubbers and cement wing runners where the wing seats atop the fuselage, giving two to three degrees of incidence (stabilizer being mounted flat). Cover the wing with tissue of Silkspan; water-dope it and brush on a couple of coats of thinned dope. Paint the body and stripe leading edges of wing and tail; then fuel-proof the nose section.

Balance the ship at one-third the wing chord from the leading edge. Adjust to glide by adding clay to nose or tail or by slightly bending trim tabs (never use extreme adjustments here). Test fly on short engine runs. If the ship you fly is your own creation as to design as well as construction, you'll condone its shortcomings and relish its merits and, what is more important, you will learn the principles of model design much sooner.

Having flown free flight, you'll doubtless want to venture further into this fascinating side of modeling. We have outlined some of the many interesting model variations, any one of which offers possibilities for the enterprising modeler who has a creative knack about him.

Figure B is but a refined realistic development of our first beginner model. It may have inverted or otherwise cowled engine, complete built-up structure with planking or sheeting, a smooth colorful finish. Above all it is flyable. Remember to provide adequate intake and outlet area for engine cooling. A trifle longer nose compensates for heavier tail structure, the stabilizer of which may employ a streamline section. Hinged rudder tab and provision for altering thrust line slightly makes for easy adjusting. It could pass for a scale job except for extra dihedral, a slightly longer landing gear and somewhat enlarged tail.

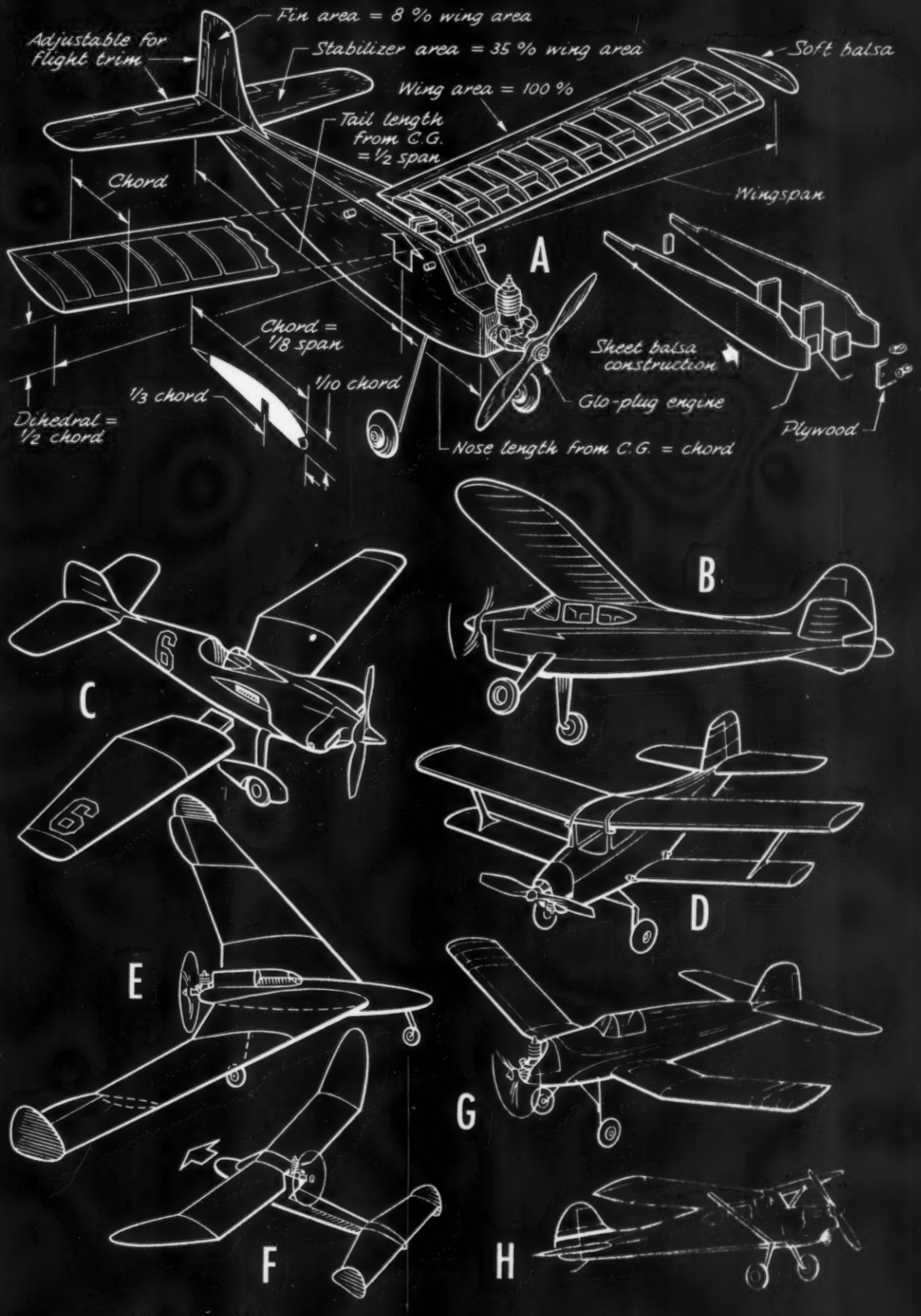
Figure C might be a free flight impression of a Goodyear racer. Since a midwing ordinarily presents assembly problems, it could employ plug-in wing halves with tongue and box assembly. Friction holds the panels in position; yet they can knock free in a rough landing. Adjustments will be more critical; balance must be watched carefully. Since overpowering aggrevates any stability or adjustment flaws, keep the power loading high. That is, see that there is an adequate load for the engine. Remember that the smallest engine can fly quite a large model if it is clean and efficient. Don't overpower.

It is surprising that we do not see more free flight gas biplanes, Figure D, for they fly beautifully, are not difficult to adjust, and score high on realism in flight. If we arbitrarily select a type with upper wing resting on the fuselage rather than having center section struts—as if inspired by Waco cabin or Beech biplane influences—the assembly is greatly simplified. Outer struts can be omitted entirely, or else function as dummies with provision to kick free in event of a hard landing. The extra wing area possible within moderate over-all dimensions makes the biplane capable of slow stable flights. A stability aid is to use less incidence in the lower wing (decalage) than in the upper one. As sketched, both wings can be held with rubber bands as well as the complete tail group. Biplanes have great appeal to most modelers. Try one sometime.

Flying wing types, Figure E, leave many individuals cold but the fellow who enjoys original experimenting will find them worthwhile. Two design factors must be kept in mind: Use of sweepback to spread the surfaces longitudinally in lieu of tail surfaces and a longitudinal dihedral or angular difference between root and tip. This last is achieved by an upturning in section of areas near the tips, or by simply unturning hinged surfaces at the tips. In some cases the rib profile changes progressively from positive lifting section at the center to a negative section at the tip. Wings can be flown without rudders. Abroad, a 7' span simple "V" wing, powered by a tiny diesel engine has flown spectacularly and glides well with engine removed. Balance point is decided by trial, being governed by amount of sweepback and extent of angular washout. Drag applied to a tip is used for turning more effectively than by turning a rudder tab. The engine may run hotter as a pusher, but if it is a glo-plug type, it will run with a regular tractor prop bolted backwards and cranked to run in opposite-to-normal direction. Dihedral is not critical; in fact a flying wing can be flown with none. It is claimed, however, that moderate dihedral makes possible a reduction in sweepback.

Pusher gas jobs, Figure F, are unusual. The Yogi kit job is one of but few examples. You can virtually eliminate propellor breakage and you encounter the same operational problems we mentioned under flying wing types. But by adding another engine to the nose, you have the one practical twin-engine free flight possibility which can fly well with both or either power plant operating! Carve left-hand propellers for the rear engine; use right-hand ones in front and you neutralize torque. It has been successfully done.

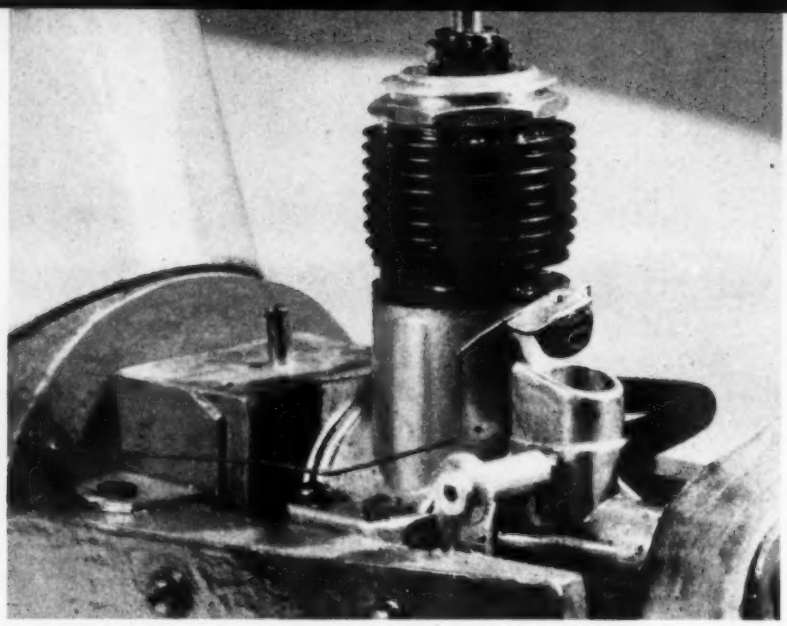
Figure G outlines a (*Continued on page* 48)


Fin area = 8 % wing area
Adjustable for flight trim
Stabilizer area = 35 % wing area
Soft balsa
Wing area = 100 %
Tail length from C.G. = ½ span
Chord
Wingspan
A
Chord = ⅛ span
Sheet balsa construction
⅓ chord
1/10 chord
Glo-plug engine
Dihedral = ½ chord
Plywood
Nose length from C.G. = chord
B
C
D
E
G
F
H

for the

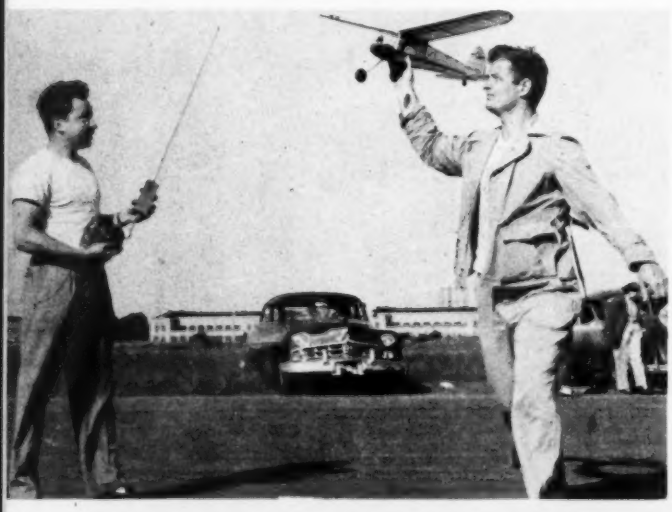
simple motor control

by NORMAN BRISKMAN



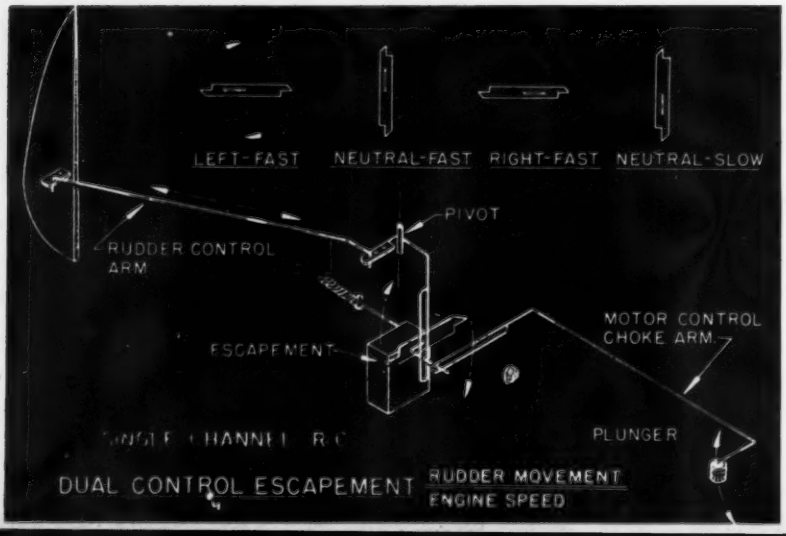
Wire linkage from escapement plunges a rubber choke stopper into intake for slow running.

An invaluable idea for motor control with a single receiver. Requires nothing but a few scraps and it works like a charm.



Norm Briskman holds the transmitter as Dave Paine launches the two-speed ship with a Cub .09 glow. Adjusts to 3-speed.

Below — Drawing shows simple mechanism described. Only restriction is an escapement that is located amidships.



Simplified dual control with a single receiver? Yes it is possible, and it does work and above all it is simple!

For several months the idea has been kicking around the local "Hobby Hub." The idea was to take the two neutral points of the rudder escapement control arm and make them the control points for the motor, because at those positions the rudder movement was unaffected. You know how the control arm of the escapement rotates from top neutral to right rudder position and then finally back to top neutral to complete the cycle. Well, what we did was to utilize the two neutral positions. We made top neutral position fast motor control, and bottom neutral position slow motor control. In other words, when the escapement's control arm is at right and left rudder controls, the motor control is at neutral (which incidentally can be fast motor control) or medium motor control according to how you adjust the swing or moment arm of the choking mechanism as it has three actual stop positions.

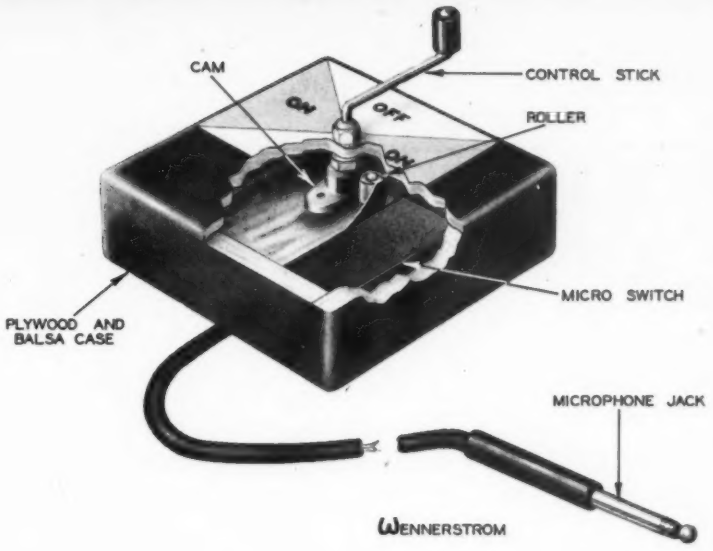
When we had chosen the plane, control became the next point of design. Rudder control? Of course! It has been well established by a majority of r. c. fans that a simple flip of the rudder this way and that will produce some of the neatest turns, spirals, spins, loops, wingovers and a few unnamed stunts.

So with a good portion of directional control taken care of and first proven with a few test flights with the plane, an additional control mechanism was introduced. This to our estimation could only be motor control, the next most effective r. c. addition. Space would not permit another receiver and certainly the weight would be too much. The engine, being an O. K. Cub .099, would not take two-speed ignition control (and two speed ignition we have generally found unfavorable). The remaining variable for the engine was the air intake. So, with a piece of .031 piano wire, a piece of thick walled rubber tubing about 1/4" long and a few drops of solder in the correct place we had "choke control." It was fortunate in our ship that the escapement was mounted well forward in the fuselage for then it was possible to use the same escapement for both controls because it was situated between (*Continued on page* 53)

R.C. fan

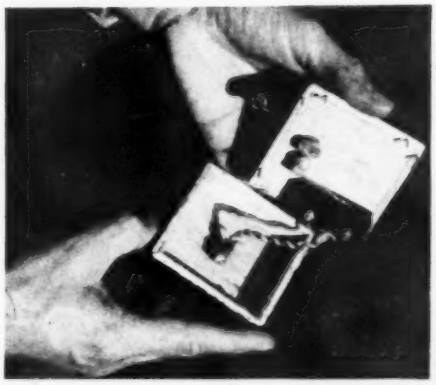
controller box

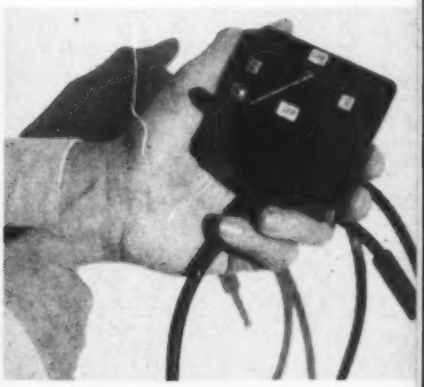
by E. J. BROWN



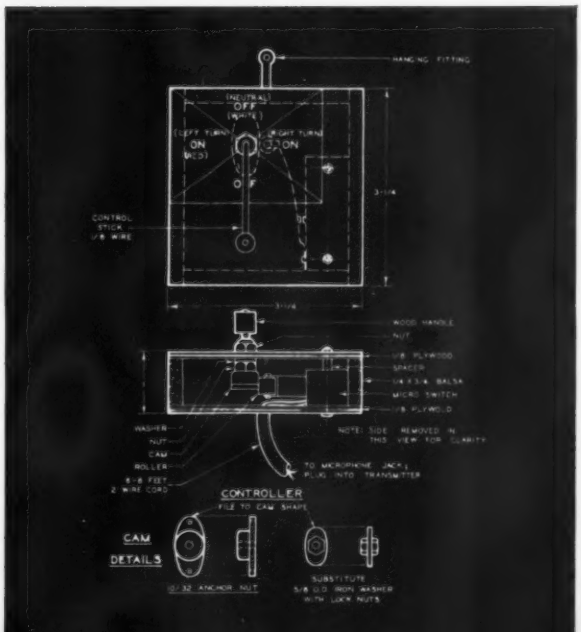
The small plywood and balsa box houses a leaf, roller-type microswitch. Stick is 1/8" wire.

If your ship flies you, this ground control gimmick is prescribed. It does your thinking for you, makes no mistakes, is automatic.





Above—Opened box displays simple mechanism. Cam on stick shaft, riding against roller, closes switch. The box fits in hand.



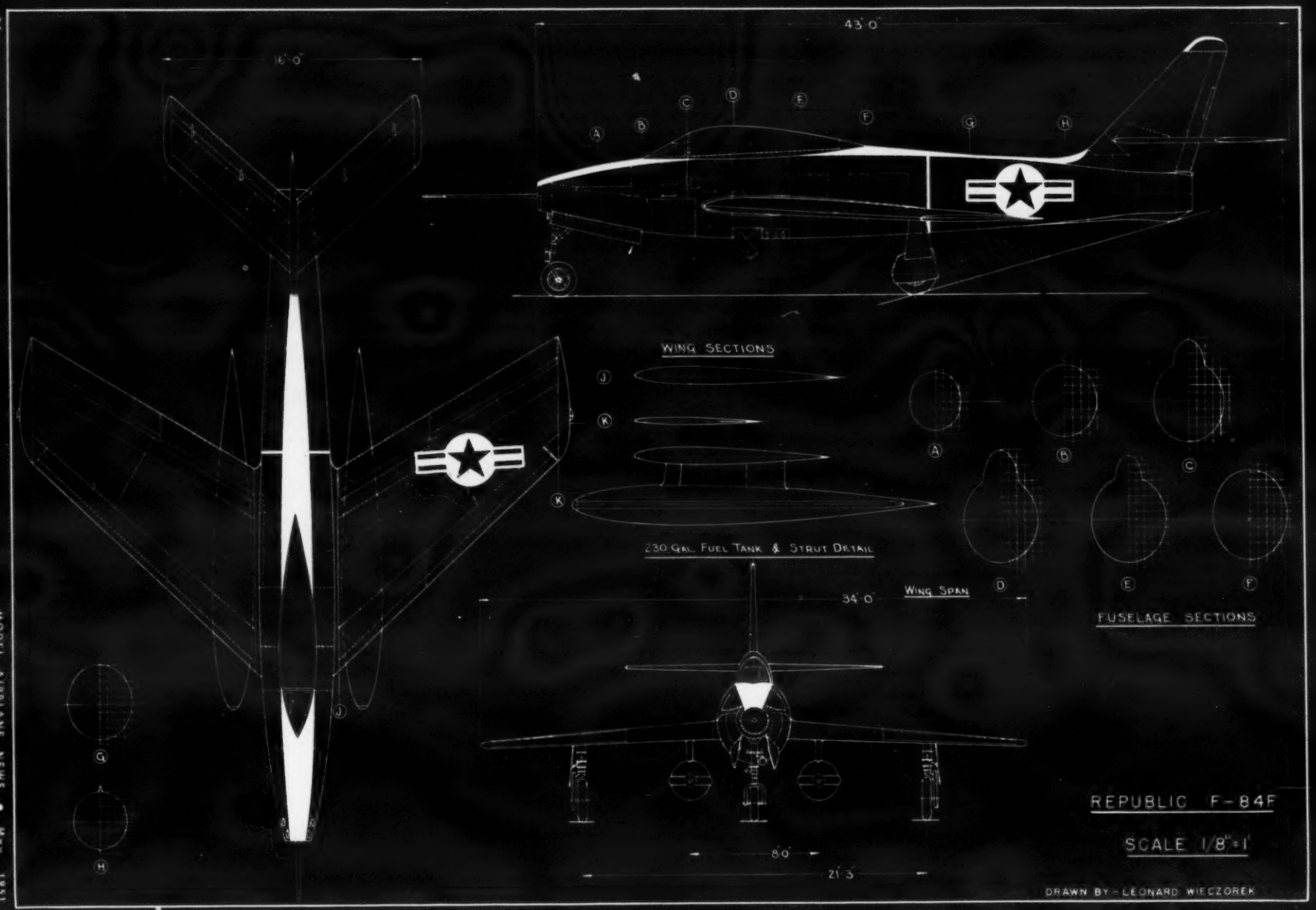
Right—Unit is easy to make from this drawing; parts not hard to obtain. Note position indicator painted on box face.

First flights convinced me that some sort of device would be necessary for the pilot to keep accurate track of the rudder movements which work in sequence of neutral, right, neutral, left, neutral, etc., with automatic return to neutral if there is any failure of the receiver to pick up the signal from the transmitter. It is necessary at times to go quite long periods without any control movements and also to make repeated turns in the same direction. It is quite easy to become confused or to forget the last position of the rudder when using the ordinary push button type of switch, and often insufficient time remains in which to correct an erroneous move to avoid a bad landing or to permit landing into the wind in the approved manner.

The Controller box was developed to do the brain work for the pilot and it automatically keeps track of the rudder movement by staying in sequence with the rudder; thus you always know what position is coming next by simply looking at the box, or, after a little practice, by "feel" alone. This Controller is extremely simple. It requires no mechanical or electric drives and can be adaptable to either two or four position escapements used for either rudder, elevator, or engine controls. (*Continued on page* 55)

After flying gas-powered free flight models for 15 years, the writer decided to try radio control, mainly to keep from losing models in the strong Southern California thermals. After digging into the back issues of the model magazines and reading all available articles on radio control, I decided that a simple receiver-transmitter-escapement type rudder control would be the best set-up for a new member of the now rapidly expanding radio bunch of model builders.

Upon checking for a suitable kit, I found none to fit my ideas of a simple cabin ship on the market. Then along came the plans for the *Rudder-Bug* in the May and June, 1949, issues of MAN. From past reading on the subject I decided that a slightly smaller ship, 62" wingspan, (Rudder-Bug) powered with a *19* Arden, would better suit my needs. This ship has proven extremely successful and durable, and I have now been flying this model for over a year. It has over 145 flights on it at this writing.


43'-0"
16'-0"
A
B
C
D
E
F
G
H
J
K
WING SECTIONS
230 GAL. FUEL TANK & STRUT DETAIL
34'-0"
WING SPAN
8'-0"
21'-3"
FUSELAGE SECTIONS
REPUBLIC F-84F
SCALE 1/8"=1'
DRAWN BY - LEONARD WIECZOREK

Formerly the F-96A, swept-wing heavyweight F-84F far outperforms famed Thunderjet. Sapphire jet engine develops more than 7,200 lb. static thrust.

PLANE ON THE COVER

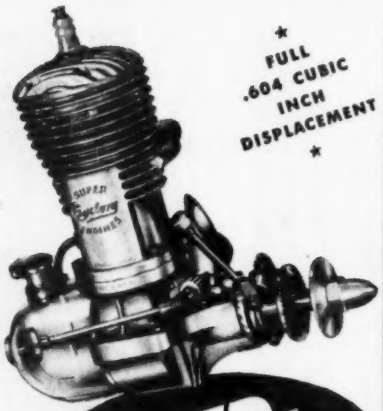
Republic F-84F

Republic's swept - wing fighter is history's most potent ground support plane, big gun in future tactical air operations.

The Army ground forces have good reason to rejoice about the mass-produced Republic F-84F, which is one of the most terrible weapons enemy troops will have had to face. The F-84F combines the swept-wing configuration with the wallop of the British Sapphire jet engine, known to develop more than 7,200 lb. static thrust (to be produced by Curtiss-Wright). Speed certainly is in the high 600's at altitude. Armed with six .50 caliber guns and capable of carrying as many as 32 five-inch rockets, or such combinations as 18 five-inch rockets and two external 230 gallon tanks, two 1,000 lb. bombs and 18 rockets, or two 450 gallon under-wing tanks for long range fighter escort duty, the F-84F is, despite a small span of 34', a bulky machine. The F-84F is five feet longer than the test F-96A, has a maximum design gross at take-off of 25,000 lb., or nearly the same as a DC-3.

As a ground support fighter, the F-84F totes up to 32 five-inch rockets, or equivalent in bombs or other armament. As high speed fighter, fixed armament consists of six .50 caliber machine guns.

Below — Though performance figures are restricted the F-84F should be capable of nearly 700 mph.



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GRAND CENTRAL AIR TERMINAL

GLENDALE 1 • CALIFORNIA

Report from West

(*Continued from page 9*)

weather conditions that prevail out west, contest dates should be spread out over a longer period of time. It has been noted that when long dry spells are evident, a big rush of contest dates are scheduled. Let's spread them out a bit.

• • •

Palm Springs, California, was host to a display of America In The Air. The Army Air Force was out en masse with jets, cargo planes, and much more of America's air might. Cutaway exhibits were shown to the many thousands on hand. Modelers from all over California were making demonstration flights with about every type of ship that graced a drawing board. Keith Storey and the rest of the FAST Club held another of their famous team events that had the crowd on its toes from start to finish. Duke Fox of the Fox Engine Corporation, and one of his flying partners, staged a team stunt event that was very sharp, and many close maneuvers were evident. As we said before, Duke is no novice in the stunt circles. Jim Walker's Surburban rolled up sporting his newest bit of equipment, a Clipper trailer. Jim staged his usual grand show and then proceeded to put his radio job up for a spectacular performance. It seems that the radio controlled model, due to wind conditions, got a bit out of reach, and because of the huge crowd, Jim couldn't get around to pick up control again. Johnny Brodbeck and Charlie Goodale made the chase, along with a posse of fans, and the ship was retrieved very quickly.

• • •

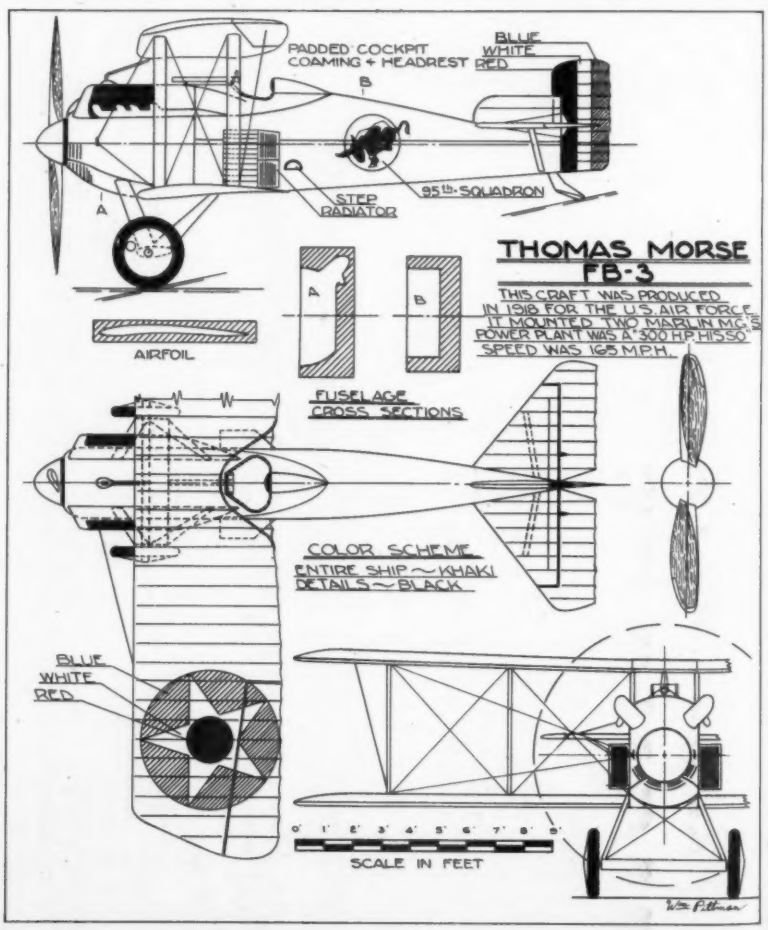
A model demonstration was recently held at the Anthony Home in San Diego with the Airliners having top billing. Dwight Putnam, Supervisor of the Home, was pleased with the show, as were the many children present. Charlie Goodale, now working with Jim Walker, brought out a number of Firebabys, and in a very short time had the majority of the kids checked out on their first flight. Donald Chin had two beefed up Comet rubber scale ships that were scale in nearly every respect. One was the Ercoupe and the other the famed Thunderbolt. These ships were powered with the Cub .099 engine, and the flying characteristics were excellent. The Thunderbolt sported the four-bladed prop which had more than enough thrust for fast steady flying. Don lives in Chula Vista and has been flying a very few months.

• • •

The Northern California Free Flight Council held its first 1951 meeting at Stockton, January 12, with the following clubs represented: Skyoneers, Oakland Cloudusters, San Leandro Line Twisters, Twin Cities Model Club, and the North Sacramento Free Lancers. It was voted to hold four meets in 1951—the other three on the tentative dates of April 22, June 24, and September 16. Contest Director for the first meet was John Koons of the North Sacramento Free Lancers. The following rules were set up for all meets in '51: twenty second engine run; five minute flight limit; launching optional; six attempts for three flights; forty seconds or over to constitute a flight; Council Club entry fee $10.00; individual flyers $1.50 per ship gas (non-club); individual flyers $1.00 per ship rubber (non-club); A.M.A. weight rules in gas but no processing in rubber; trophies to 4th place in AA, A, B, and C; trophies for high time rubber (senior and junior); all meets to be over by 3:00 p.m.

The modelers in the N. C. FF Council are definitely opposed to the A.M.A. changes in free flight gas, as they feel that it is too

(*Continued on page 40*)



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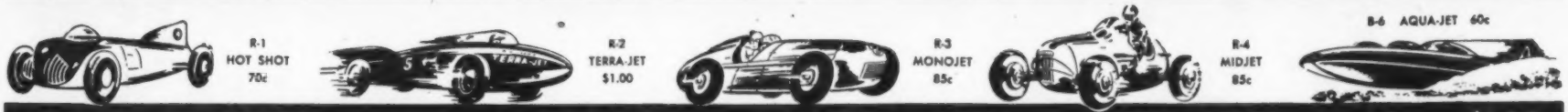

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over the counter

A monthly review of hobby developments, new items

by THE TRADE OBSERVER

The *Model Industry Association Convention & Trade Show*, held February 4 through 8, at the Hotel Morrison, Chicago, was the most successful of the many trade shows to date. Ninety-three booths testified to the importance of model planes, trains, boats, and the handicrafts as nationwide hobbies. While there was a general feeling that circumstances posed a threat to business as usual, especially in the engine business, the wide variety of kits, engines, accessories, and other model airplane items, for which orders were gladly taken, indicates that as far as the individual modeler is concerned, the scarcity pinch is still a thing of the future.

Exclusive interviews with manufacturers Nils Testor and Jack Besser afforded a valuable and accurate birds-eye-picture of what is going on. Nils Testor, whose wide interest provides a comprehensive viewpoint, told us that if the model industry were to go on growing, as is likely in view of the scarcity of other recreational merchandise, an acute shortage of components necessary to such growth would quickly develop. Most basic material suppliers are limiting their output to that of a certain base period of a preceding year. Balsa wood is in reasonably fair supply, though the future is uncertain.

"On the assumption that metals and plastics will become increasingly tight," stated Testor, "it is reasonable to assume that there will be a great influx again of so-called solid models or scale models requiring mainly balsa or hard wood and cardboard boxes as raw materials. As far as fuels are concerned, there is as yet no acute shortage of chemicals with the possible exception of castor oil, although the container solution as it applies to metal cans is extremely difficult. The whole question of flying model airplanes, in this particular instance, is tied in with the availability of engines, hardware, and plastic parts.

"By planning sufficiently in advance," Testor concluded, "most manufacturers will be able to obtain substantially the same quantities of most materials, or at least substitutes for them, so as to enable them to have the same output of cement, dope, fuel, and possibly certain types of kits as during the preceding year."

In view of Testor's remarks, it was interesting to see sample models of large built-up all-balsa scale jobs, for pedestal mounting, using the highly developed die-cutting and keying assembly methods worked out in the company's graduated series of controline models. These will sell at $1.50. The first was the *Spitfire*.

Duro-Matic, K & B and Mel Anderson talked of new engines. The *Baby Mac* made its debut, as did the long awaited K & B *19*; Anderson will have a *Spitzy Sr.*, described below.

Monogram's always realistic Jack Besser, acknowledging that raw materials have skyrocketed in price and their delivery to the manufacturer extended to as long as six months in some cases, including cartons, rubber wheels, plastics, metals, etc., had this to say, "This situation is brought about by more of a desire to hoard than actual shortages, at least at this particular time. At a later date we will see more of the shortages.

"In spite of all the difficulties that confront the average manufacturer today in our industry," Besser winds up, "barring an all-out war, I believe that model kits and supplies will be on the market and in abundance." And that is what we modelers want to hear.

Featured in the April issue of *Model Airplane News*, Jim Saftig's small-A stunt model *Wee Duper Zilch*, has been manufactured in kit form by Berkeley Models, Inc. (25 Harborough Rd., W. Hempstead, L. I., N. Y.). List price is $2.95. Other new items by this old firm include *The Thing*, a new prefabricated team racer, and four new prefabricated fliers. Selling at 50¢ these models include metal cowl, plastic prop.

Mel Anderson Mfg. Co. (1819 Third Ave., Los Angeles 6, Cal.) recently announced a *Spitzy Senior*, with the same displacement as the *Spitzy Junior* (Engine Review, November *MAN*), but with many new features and new and improved manufacturing improvements involving tooling, etc. More visual changes include a high-compression brass head, and a tank with two and a half times the capacity of the old tank, a boon to control fans.

Monogram Models, Inc. (225 N. Racine Ave., Chicago 7, Ill.) producers of the *Speedee-Bilt* flying scale models, have brought back into their line ship model kits for an *LST* and a *Cruiser*. This makes a total of five ship kits listed by Monogram at $1.25. Hulls are fully carved. Also coming back into the limelight is the Monogram *Terra-Jet*, a jet powered racing car of futuristic design that was extremely popular several years ago. Many demands for this $1.00 item led to its revival by this Chicago firm.

Lovers of World War II flying model types, and Cleveland CD kits to boot, will be interested in a $1.50 two-foot span *Mustang*. Ed Pachasa of Cleveland Model and Supply Co. (4507 Lorain Ave., Cleveland 2, Ohio) is an outspoken defender of the built-up kits. In speaking of the *Mustang*, he stated that it does not limit the builder to one style of flying because of heavy and thick prefabricated parts, but may be flown free flight, either for rubber or gas (.02-.035), or as controline for sport or team racing.

Pactra Chemical Co. (524 S. Spring St., Los Angeles, Cal.), makers of *Aero Gloss*, now have a line of hot fuel-proof dopes in new glass containers, permitting instant, accurate appraisal of colors, unaffected by oxidation and other factors which often render color patches on labels or can tops unreliable. A

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1/16 sq.	½c	3/16x5/8	6c
1/16x1/8	1c	1/4 sq.	3½c
1/16x3/16	1½c	1/4x3/8	4c
1/16x1/4	2c	1/4x1/2	6c
1/16x3/8	2½c	1/4x5/8	7c
1/16x1/2	3c	1/4x3/4	8c
3/32 sq.	1c	5/16 sq.	8c
3/32x3/16	2c	3/8 sq.	6c
3/32x1/4	2½c	3/8x1/2	8c
3/32x3/8	3c	1/2 sq.	9c
3/32x1/2	3½c	5/4 sq.	15c

PLANKS

1x3	$ .65
1x6	$1.20
1x8	.85
2x4	1.60
2x6	2.35
3x3	1.80
3x4	4.00
4x4	3.50
4x6	4.25

SHEETS

1/64x2	10c
1/32x3	10c
1/20x2	10c
1/16x2	10c
3/32x3	13c
1/8x2	12c
1/32x3	13c
3/16x2	14c
1/4x2	16c
5/16x2	18c
3/8x3	20c
1/2x2	22c
1/32x3	14c
1/16x3	14c
3/32x3	16c
1/8x3	18c
3/16x3	22c
1/4x3	25c
3/8x3	32c
1/2x3	35c

Beveled balsa trailing edges, 36" lengths

3/32x3/8 4c	5/32x5/8 6c	7/32x3/8 8c
1/8x1/2 5c	3/16x3/4 7c	1/4x1 9c

Propeller Blocks

8x7/8x1-3/16 8c		18x1-3/4x2 40c
10x1x1-1/2 12c	9x1-1/2x2 15c	
12x1x1-1/2 14c	10x1-3/4x2 25c	Glider Wing Section
14x1-3/16x1-3/4 16c	10x1-1/2x2 32c	3x3/16x20 .18c

Cement tube cement 10c & 25c
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Clear Dope 1 oz. 10c, 2 oz. 20c, 8 oz. 50c
Thinner 1 oz. 10c, 2 oz. 20c, 8 oz. 50c
Colored Dope 1 oz. 10¢, 2 oz. 20c, 8 oz. 45c
Red, Orange, Yellow, Green, Lt. Blue, Metallic Red, Metallic Blue, Black, White, Silver, Olive Drab
Music wire 3 ft. .020 & .030, 3c; .035 & .040, 4c; 1/16, 5c; 3/32, 10c; 1/8, 15c
Silkspan, White .00, 5c sheet; GM, 10c; 3 for 25c
Jap Tissue, Red, Yellow, Blue 2 for 15c
G-M Tissue, White, Red, Yellow, Blue 10c, 3 for 25c
T-56 rubber, per ft. 1/32, 1/16, 3/32, 1/8, 1c; 3/16, 1½c; 1/4, 2c
Aluminum tubing, per ft. 1/16, 3/32, 10c; 1/8, 12c, 3/16, 15c; 1/4 18c
Brass tubing, per ft. 1/16, 12c; 3/32, 14c; 1/8, 18c; 3/16, 20c; 1/4, 24c
Plywood Sheets .6x12; 1/16; 3/32; 1/8; 3/16; 1/4 30c
Cellulose acetate sheets .008, 10c; .010, 20c; .030; 30c
Testor carved balsa propellors 12", 14" & 16" dia. 50c ea.
Jasco rubber tube 1 oz. 15c
Jasco Microfilm Solution 1 oz. 17c
Prop hook small 5c; med. 5c; large 5c
Large face bushings .3/8"; 7/8", eyelet 1/10x3/16, 5c
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Tensioner springs 5c
Ball bearing washer .040" I.D.; 1/16" I.D. 10c
Prop washers 1/8" OD; 1/4" OD 12 for 5c

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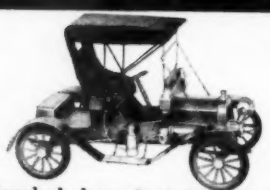

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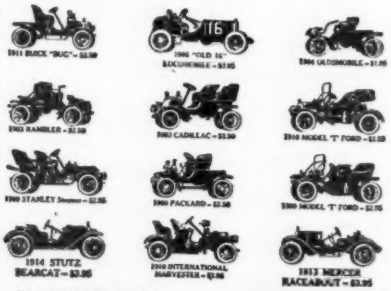

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feature of the *Aero Gloss* dopes is an authentic matching up with well-known finishes of large aircraft, such as *Silvaire* aluminum, *Cub* yellow, *Corsair* blue, etc. Available at 60¢ a jar.

On display at the Show by Allyn Sales Co. (6425 McKinley Ave., Los Angeles, Cal.) were two new plastic kits for display models, the Douglas *Skyknight* and the Boeing *Strato-jet*. The *Skyknight* has a span of 12½", stands 9" high, is blue in color with a clear plastic base. The *Strato-jet* has a 9¾" span, stands 6¾" high, is grey with a clear base. Both feature a slide lock base to attach the pedestal. Allyn will add shortly a Boeing *Strato-Cruiser* and *Strato Freighter*. There are five models in the Douglas series so far. Distinctive bases have been created for both the Douglas and Boeing series. Retail $2.49.

Hobbyists who own a Dremel (Dremel Mfg. Co., Wis.) electric coping saw will be interested in a newly devised set of plans by the same company for converting the $5.85 hand-held tool into a bench or table type saw. Obtainable for 35¢ separately, the plans are template style, with table parts cut from ¼" thick wood. Plans included with each saw, also include six woodworking projects. Plane builders will find the Dremel saw useful for such purposes as ribs, blocks, and prop blanks—hard as well as of balsa wood.

A new all-purpose electric sprayer with a multi-vein spinner nozzle that imparts a swirling motion to the fluid being sprayed as an aid to atomization, is being marketed by Burgess Vibrocrafters, Inc. (180 N. Wabash Ave., Chicago 1, Ill.). A selection of coarse and fine spinners for heavy- or light-bodied liquids is furnished with the unit. Self contained, this spray is ready to plug in, and may be used with enamel, laquer, glossy paint, wall paint, varnish, etc. Fine finishes not obtainable by brush may be had with a spray, important to builders of scale or beauty event entries. Retail $10.95.

RANDOM NEWS:

Harold deBolt (DMECO, Williamsville, N. Y. has been test flying a cute looking AA payload model. Will payload entice this controline manufacturer into free flight? . . . Bill Halbert (Flo-Torque, Baraboo, Wis.) is grinding out those *Invader Props* in many sizes. Clean looking props, too. One way to tell is to feel the edges . . . Grish Brothers (Box 52, St. John, Ind.) displayed an impressive array of those pressed-treated wood props at the show. Process permits very thin blades and sharp edges . . . Strombecker (Strombecker Mfg. Co., 51 St. and 4th Ave., Moline, Ill.) now has a 79¢ *F-94 Lockheed* fighter assembly kit . . . Judging by the production of Top Flite (2635 Wabash Ave., Chicago 16, Ill.) props, which your reporter witnessed recently with awe, proved the woods are filled with modelers. Where do all these props go? Put them on the engine right, you beginners! . . . Monarch's (248 Marion St., Brooklyn 33, N.Y.) *Scot-Free* has been wowing the production boys who appreciate such things with its clever prefabrication in a streamlined pod-and-boom type free flight . . . Vernon Macnabb (The Vernon C. Macnabb Co., 915 Westfield Blvd., Indianapolis, Ind.) probably reached a new high for questions and answers at a trade show booth. Interest in radio is really snowballing. Jim Walker took time out to hook up one of his *Pozzipo* units with Macnabb's receiver. The Walker unit, now under development, affords a multitude of elevator and rudder positions, as well as means of operating brakes, motor, or ailerons, and all on one channel. Both Jim and Mac saw some possibilities. Macnabb also selling the self-neutralizing Bonner escapement, a marvel of design and exacting workmanship. Watching these proceedings, your editor told us his oldest boy had assembled a Control Research (P. O. Box 9, Hampton, Virginia) transmitter and receiver with a gas pliers—and it works . . . Victor Stanzel & Co. (Schulenberg, Tex.) has announced that their recently patented *Monoline* single line system will be available to manufacturers for production of kits, control devices.

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The New "OK" CUB .039
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This is the Real Engine for your first power model . . . easy to install . . . a snap to start. Bore .390, stroke .334 . . **$4.95**

SAVE MONEY on this easy assembly

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Outstanding Half-A for free flight & indoor flying . . . **$5.25**

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Outstanding for its rugged, powerful Class "A" performance . . . **$6.95**

"OK" CUB ACCESSORIES

Propeller Spinner . . . fits all Cubs **.15¢**
Starting Pulley . . . . . fits all Cubs **.25¢**
Engine Mount and Tank . . . fits .049 and .074 Cubs . . . . . **.50¢**
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.049 only **$5.75**
.074—**$6.75** .099—**$7.75**
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New features include ebonized cylinder, gold anodized high compression cylinder head. Complete with glow plug and tank **$10.95**

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MIGHTY
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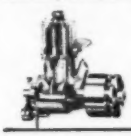

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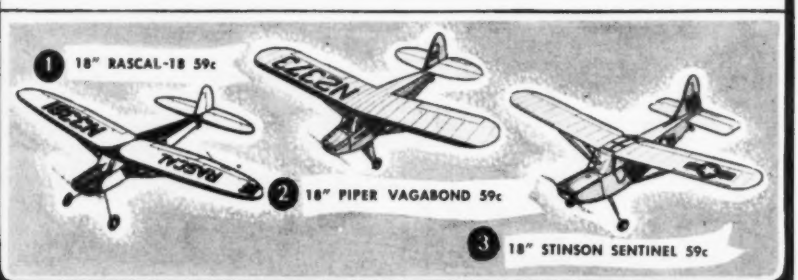

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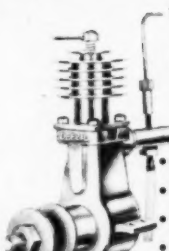

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Report from West

(*Continued from page 36*)

costly to build up a new series of ships every time someone gets the idea the rules should be changed. . . . Hard working June Dyer was presented with a beautiful trophy by the Northern Council at the February 25th meet. June is the gal who worked for so many years to help the clubs along. . . . The Tracy FF field was lost to the modelers as the hot-rodders have leased it for drag racing. . . . The Elmhurst Prop-Busters elected the following officers for 1951: President, Hal Simmons; Secretary, Stan Fadden; Sgt. At Arms, Guy Dake. The 1951 officers for the Free Flight Council are: Hal Simmons, President; John Lenderman, Secretary; and Tom Moore, Publicity.

• • •

The Second Annual Dinner Meeting of the Western Associated Modelers was held January 13, 1951, and members of sixteen of the clubs were present. Jalmar J. Swenson, President of the W.A.M., called attention to the scope of the Annual Reports which had been passed out to the modelers and representatives present, thanked the recorders, Mom and Pop Robbers, for their work and efforts on behalf of the Association. He then presented them with a check, a gift from the majority of the Association clubs, requesting that they purchase a gift for themselves. (At this writing, Mom Robbers is now the proud possessor of a coffee and sandwich table, and she is still hinting for a large white hat for the summer contests.)

Yep, carved and painted by Bob Costanza of the Aero Modelers, The Thing was awarded to the club with the least attendance at the dinner. Awarded to the Hayward Flying Kilroys after a draw-off with the S.F. Vultures, S.F. Mustangs, and the Mission Model Flyers, The Thing may be viewed at Jack Stanton's Hobby Shop out in Hayward.

Mr. James D. Ryan announced that a trophy will be made available to the Association to be awarded to the most improved model flyer during 1951. Rules for the selection of the winning modeler are to be set up by the Association so that this award can be made at the next Annual Dinner Meeting, January 1952.

The following officers were elected to hold W.A.M. offices during 1951: W.A.M. President, W. J. MacDerracher of the Frisco Hi-Hatters; Vice-President, J. Everett Underwood of the Martinez Aero Modelers; Secretary-Treasurer, Harvey S. Robbers, Sr., of the Sky Rogues.

• • •

The San Diego Aeroneers have made plans for their 11th Annual Western States Championship Free Flight Contest. The tentative date at this writing is June 3rd. Classes AA, A, B and C will be on the agenda, with trophies and merchandise to 3rd place. The Juniors will have a free-for-all with a 1st, 2nd, and 3rd award to shoot for. In conjunction with the power classes, a combined rubber event will also be scheduled with two classes, one for the Juniors and the other Open. Both rubber and gas will have a ten-minute flight limit, and contest time will be from 8:00 a.m. till 2:30 p.m.

• • •

A short time ago we told you of the Portland Fireball contest that was held in Portland, Oregon. This contest was strictly for the beginner although he didn't collect any of the awards. This type of meet was held specifically to teach the Misters and Misses how to fly a model plane. The contestant (instructor) who taught the most people in a given time won the major award. In conjunction with the above mentioned, San Diego will have a contest of this type in the very near future. Two hundred dollars will be given as a reward to the top six contestant instructors who accumulate the most points through their efforts to teach others to fly U-control. This will be another first for the West, as the outcome of this contest will determine the magnitude of other contests such as this on a national scale.

• • •

Sol Taibi, famous model designer and flyer, and family, made a vacation trip out West, and after the wet cold drive he decided that the West should be his new home.

Speed Can Be Fun

(*Continued from page 13*)

as you now have a solid fuel to adjust for. The result is that your model buzzes around nicely for a lap or so and then richens up badly and may even quit; so many times a flyer wishes he could just reach out there and give that needle the desired twist! Naturally, the cure for this is to plan your model so that a good foundation is assured. There are several ways of accomplishing this and by far the lightest and yet a good strong mounting is to use hard maple. This can be in the form of a half or full length crutch; even engine bearers can be used if desired. It can be built up from straight pieces and fastened together with glue and screws or else the shape can be laid out on a board and cut to actual size and shape. Whatever is done however, the sizes should be ample as wood is a wonderful vibration dampening agent and it should be laid out so that the whole engine installation is fastened to it. With a foundation of this sort, balsa works well as a means of fairing it out to the desired shape. Use piano wire skids at points of wear. The other type of foundation in use today is metal. With this material the whole bottom of the model is usually made from a casting or shaped from sheet aluminum. It works very well and provides a good solid mounting when built right.

Of course, the finest foundation in the world is of no avail if the fuel tank does not work as it should. No matter what type engine we can think of, automobile, boat, aircraft or stationary, there is always a means of pumping the fuel to it. In some cases, it is done by raising the fuel tank above the engine and allowing gravity to do the work as in a stationary engine. The most familiar means of accomplishing this end is the fuel pump, a gadget which forces the fuel from the tank to the engine. Our engines are so small, and we are so worried about weight that a fuel pump becomes almost impractical; therefore, we use our fuel tank as a pump. This method takes into consideration factors that do not immediately meet the eye and even when they are explained, their actions can be vague and difficult to understand. This is the reason why so much fuel trouble is evident and it is only within the last year or so that it has become fully understood even by the experts. The answer as I recall it was first put forward by the Dooling brothers for use in race cars. They suggested that we should control the "head of fuel" and use it to accomplish our purpose. Now, this "head of fuel" has become the means by which we are able to control the amount of fuel that we feed to the engine. "Head of fuel" is a general term used to describe the location and shape of the fuel in the tank while the model is in flight. It has been shown that when a model is under way, centrifugal force overcomes all other forces to the extent that it forces the fuel against the outboard side of the tank in sort of a solid wall of fuel so to speak; this fixes the location of the fuel in the tank. The shape of the fuel is controlled by the height and length of the tank; that is, the higher and longer the tank is, the thinner this wall of fuel will be. While the location of the fuel is important as it determines the position of our fuel outlet and vents, it is the shape of the fuel which controls the running of our engine in flight and therefore overshadows the location in importance. Centrifugal force is the factor which we must use to work for us, and we must understand its effect upon the shape of the fuel. Let us take a couple of examples to illustrate just what happens and why we want it that way. One is a tank which is short in height and length, wide in width. This is more or less a flat tank which can even have a half round bottom; actual shape makes little difference as it is the average dimensions that count.

With this tank, the fuel shape in flight assumes that of a domino laid flat. Thus, you have the forces acting upon the whole width of the fuel trying to force it out of the tanks outlet tube. If you can visualize the engine using this fuel up as the flight

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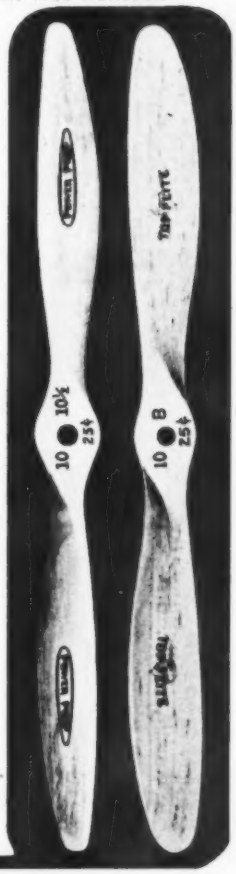

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progresses, you will note that the weight of fuel upon the outlet tube becomes less and less as the flight goes along due to the width of the fuel decreasing. The result is that if you adjust the engine so that it runs well at the beginning of the flight, it will gradually lean out until it stops due to the decrease in fuel pressure. This makes for a constantly changing engine run which leaves a lot up to chance when it comes to timing the fastest laps; thus this type of tank is an undesirable one for speed flying.

If we have a tank of the same capacity but one which is longer in length and taller in height, thus, very much narrower in width, we could compare it to the domino set on edge. It can be seen that by using this shape we have done our best to remedy the fault of the wide tank by reducing the width to a minimum. With this narrow width, the fuel pressure will decrease very little during the fligth and will do it much more gradually due to confining the same volume of fuel into a much thinner wall. It is possible with a tank of this shape properly located to be able to peak your engine on the ground and have it hold the peak for the entire flight! We say properly located and that is another important aspect of it as well as an advantage for the thinner tank.

The location of the fuel tank in respect to the engine's venturi is of as much importance as anything else in order to obtain proper fuel flow. With this thin tank, we have ample room within the fuselage so that we can move it back and forth from side to side. The farther inboard this tank is mounted, the greater pressure the fuel will have at the needle valve. As it is moved towards the outboard side, this pressure will lessen; as we tend to move the tank away from the needle valve; and in extreme cases, the engine may even have to draw the fuel against centrifugal force. This factor is very advantageous as it allows us to control the amount of fuel we wish to serve to the engine. If the engine tends to lean out in the air, all that we have to do is to move the tank farther inboard, thus adding more fuel pressure at the needle valve. On the other hand, if a rich condition exists, we can move it outboard and relieve some of this pressure. Only with this set-up can we have a positive control over our fuel flow and a means by which we can obtain a perfect engine run. The difference can be plenty of miles per gallon besides the self-satisfaction obtained from a sweet running engine!

My thoughts concerning speed are first, that you should get the engine so that it operates perfectly on every flight—you shouldn't have to hope that you have the needle set just right, you should know; second, that you should have a model that is easy to fly, one that really flys in the groove so that you do not have to worry about flying it. With these two things out of the way, you then can concentrate on all the other things which you may hope will add to your speed. You can make good sound tests concerning them and know whether they were of benefit or not! Remember, the tank is as important as the engine!

News of Modelers

PEN-PAL SEEKERS: George Craswell, 33 Argyle St., Penshurst, Sydney, N.S.W., Australia, would like a correspondent in the United States . . . John M. Webb, 3 Temple Lane, Whilkins, Leeds, Yorkshire, England, wishes to write to an American modeler, will exchange British model magazines and accessories for American.

EXCHANGE MOTORS: Murray Elliott, R. R. 2, Listowel, Ontario, Canada wants to exchange Infant Torpedo for any .045 to .049 engine . . . Trevor Broise has a Frog .29 to trade for a Fox 35 or Dooling 29 . . . M. Keary, 2 Broad Rd., Swanscombe, Greenhithe, Kent, England would like to exchange several English engines for corresponding American engines . . . Peter Donavon-Hichie is interested in exchanging British engines and accessories for American ones.

SPECIAL REQUESTS: Everett W. Smith, Jr., Waterboro, Me., is interested in obtaining copies of MAN prior to 1933.

Snappy Stuff

(*Continued from page 18*)

it secure with pins; dope down all outside edges first, and when dry give the covering three coats of clear dope. The dope should be cut at least 30% before each application.

A soft balsa block is used on the rear top portion of the fuselage. Hollow out as shown, and cement in place. Trim to the proper angle and shape. The forward block is cut to shape and hollowed out in a similar manner. Do not cement the block in place, this portion of the fuselage is removable.

The engine should be fitted in and the mounting holes drilled. Be sure to offset engine for approximately 5° right thrust. Remove the engine and proceed to finish the fuselage. A soft balsa nose block is cemented up front, and one in the rear, sand to contours shown. The lower portion of the fuselage is covered with 1/8" sheet; note the grain direction on drawings. Give the fuselage three coats of clear dope.

The rudder is shaped from 3/16" sheet balsa and sanded to an airfoil shape. A notch should be cut in the top of the fuselage block so when the fin is cemented in place we will have 5° of right rudder. Give the rudder and fin asembly three coats of clear dope. In covering the elevator and stab, proceed in a similar manner as we did with the wing.

The entire model was given two coats and trimmed with one coat of red. Apply a good coat of fuel proofer, two coats to the engine compartment. Clip to the front of the firewall the Walker fuel regulator, to the rear of the firewall the Walker tank, and check drawing for clip detail. Two rubber bands are used to institute pressure in the tank. The tank is sandwiched between two 1/16" pieces of plywood. Reinstall the engine, and screw in place a 10-6 Power Prop made by Top Flight. Add a 1 7/8" Froom Spinner. A standard bubble canopy is cemented to the hatch, but first install the balsa headrest.

The main wheels are 2½" dia., the rear wheel is 1" dia. Solder all three in place. For added looks, solder the gear struts which are made from thin shim brass in place.

The original model was flown in a 70' circle, using Pylon Brand .018 flexible control cable. For safety on high maneuvers, be sure to place a one-ounce lead weight in the outside tip.

Planes in the News

(*Continued from page 15*)

touched out on the photos. Vertical tail is sweptback and of a high aspect ratio.

For historians, the plane made its first flight at Edwards AFB on January 23, 1951. It's intended for catapult take-off; other observations from one source mentioned folding wings (panels hinged at the outboard edge of the walkway); full-span leading edge and partial-span trailing edge flaps; fuel storage in wing roots, armament in the nose.

Three-view is entirely provisional and based only on the photo. The F4D should make an interesting solid model, or it could be flown with Jetex or Dynajet. And of course, the plane is painted the Navy standard dark sea-blue, with black walkways, duct lips and wing leading edge. Insignia are white with the horizontal red bar. The cap at the top of the vertical tail is probably a plastic piece with a buried (suppressed) radio antenna inside. In that case, its color is a pale gray verging on white.

Douglas' Second Entry, the 1211-J, is the latest contender for the inter-continental bomber job envisioned for the B-36 successor—and it's a big one. Gross weight is about 322,000 lb., of which more than half—174,000 lb.—is fuel. Design configuration is that of a sweep-wing turboprop job. Fuselage has extremely high fineness ratio; wing aspect ratio is 12. Design range is 11,000 nautical miles at 55,000' altitude and 450 knots.

The Immortal F-80 is well on its way to becoming the P-40 or the Wildcat of this war. It was the standard service fighter on hand when the shooting started (like the

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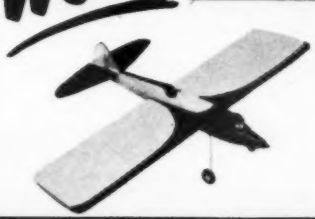

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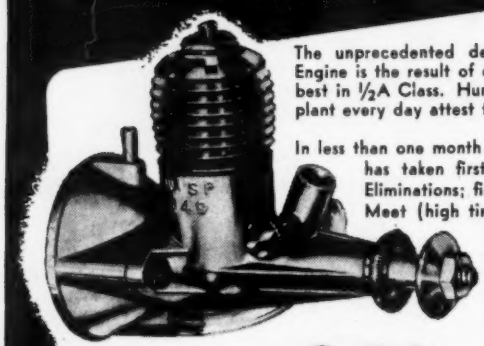

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P-40 and F4F) and it went into action "as was." As deficiencies and new techniques showed up in battle, changes were made in the airplane's use and appearance. New drop tanks were cobbled up; rockets were added, and now the F-80, she of the clean lines and classic layout, is toting napalm. The first picture published of the plane, loaded and ready to go, shows it fitted with six 110-gallon tanks of napalm. (Napalm is jellied gasoline, and weighs more than gasoline's 6 lb. per gal.) So that means the Shooting Star is carrying around at least another 2½ tons of stuff she was never intended to carry.

New Engines and Fins mark the production Packet changes. The Kaiser-Frazer version will be called the C-119C Packet and will be powered by two Wright R-3350-30WA engines driving 4-bladed Aeroproducts props. The fins are dorsal additions to the top of the tail boom and start at the wing trailing edge. Four-wheel bogie landing gear has also been fitted and flaps and ailerons have been redesigned.

FJ2 Is the Designation for the Navy's modified North American F-86D Sabre, the all-weather, radar-nose job. She is to be produced at the ex-Curtiss plant at Columbus, Ohio, wartime home of the Helldiver SB2C.

Recent Flights of the RB-45C-1 and B-36D aircraft to Great Britain were noted with great thoroughness by the British magazines Flight and Aeroplane. Both had photographers at the site, and their staff members were permitted to crawl around, photograph and ask questions to their hearts' delights. The result: More information on those airplanes than has been published over here. Among other items, the British passed along the point that the B-36 has an edge in small-field performance over the B-29, by virtue of the extra turbojet assist for take-off (erroneously reported in our papers as JATO) and the reverse props for landing. The RB-45C-1s were fitted with 1200-gal. wing tip tanks bearing verticle fins fore and aft, and a horizontal tail aft; in addition, they were equipped with flight refueling gear.

First Real Glimpses of Russian aircraft have been released by the Dept. of Defense (ours, not theirs) as stills from a captured Russian propaganda movie. Slickest looking aircraft in the collection was credited by the photos to Semyon A. Lavochkin, ace Soviet designer. It looks something like the MIG-15, or the F-86, or any of the season's crop of swept-wing jet fighters. Wing taper ratio is low, and the horizontal tail is set high on the vertical fin. Fuselage lines are smooth and marred only by a fairing under the tail. There could be three reasons for this fairing: concealing a rocket-assist motor (unlikely because of the fairing's small size); providing a little additional fin area which was found necessary after flight testing; acting as a tail bumper to protect the fuselage during tail-low landings.

The photos and some German information have been worked into a reasonable three-view. But remember: Everything about the drawing—even the designation of the airplane—is provisional. All we know for sure is that a fighter of this configuration has been flown in Russia. Beyond that, speculation is the only source of data—and there has been entirely too much speculation lately on Red air strength.

Made an MIG yet from the three-view with the Plane-on-the-Cover story in March? If it lacks some individuality, how about painting a diagonal red slash across the fuselage? Such an MIG has been reported several times in Korea; in fact, the guy who flies it is a hot pilot and has two USAF jets to his credit. Other MIGs seen on the ground inside Germany have colored vertical tails with a black or dark red tip extending about one-third of the way down toward the stabilizer. And another report from inside Germany says that the Russians aren't such hot formation and bad-weather fliers yet. A formation of 9 I1-10 (modernized Stormovik) took off from Schonwalde, just outside Berlin, on a routine mission. Seven of the group got back to the base, and one of the seven had a damaged wing from sloppy formation flying. Ever seen the Acrojets or the Blue Angels, and still won-

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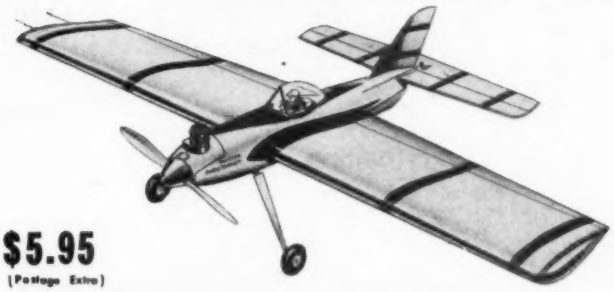

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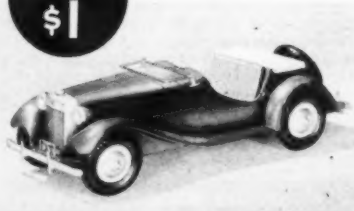

dered why the equally matched MIG and F-86 fights generally turn out with an F-86 win? While it is not positive who has been flying the Russian MIG, our jets have displayed superior teamwork.

Turboliner—joint Convair-Allison venture into the field of the Turboprop transport—made its first flight just after the beginning of this year. Differing only in the power plant installation, the Turboliner has been easily adapted from a standard 240 Convairliner.

Convair's third turboprop craft is powered by Allison 501 engines which deliver a total maximum of 5500 hp for take-off. Original nacelle of the 240 needed little modification, but this must have been because of the rush to get the thing in the air. The characteristic bulkiness of the 240 nacelle has been retained in the Turboliner, in sharp contrast to the pencil-slim installations of Darts and Mambas in current British turboprop airliner prototypes. But by doing it the way they did, Convair possibly sees a future program of kit conversions for airlines now operating the standard, piston-engined 240. And it was the quickest way, if not the neatest.

How many things can you do to the DC-3? British European Airways is the latest operator to come up with a conversion for its Dakota (C-47 conversion) fleet, in a slick new network named the Pionair. All the changes are inside, and the result is no increase in gross weight. That means the current engines can be used. On short hops, 32 passengers crowd into the plane (although the new seats are 2½" wider); on slightly longer trips (the kind requiring a steward and food) a quickly removable galley is installed and the capacity goes down to 28. Two changes made this conversion possible: first, the heavy floor structure remember, these ships were originally C-47 cargo jobs, and not the DC-3 transports) was replaced by a lighter one, and second, BEA's third man, the radio operator, has been eliminated. All 32 of BEA's Dakota fleet are slated to become Pionairs, and the expectations are for five years more of life in the old girl.

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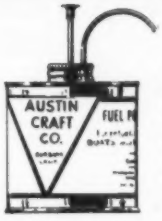

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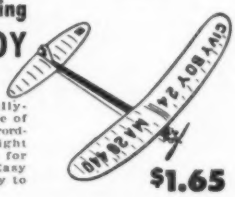

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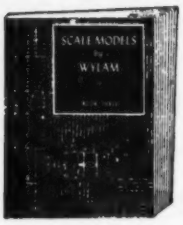

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The Fabulous F4B-4

(*Continued from page 23*)

radio mast and antenna are added, plus the lights which are painted round head pins that can be purchased at any dime store. Dummy louvers on the nose are done with pen and india ink. Dowel or plastic tubing makes fine exhaust stacks. The bond paper anti-draft cockpit fairing is optional. The completed model should receive two coats of fuel proofer to prevent the glo-fuels from ruining the finish.

It is most important that the model balances as the plans indicate. The addition of lead weight in the nose or tail will remedy any unbalanced condition. Use .012" thick steel lines from 45 to 60 feet long. The large, unobstructed wheels and the forward location of the landing gear allow the model to be flown from grassy sites, although smooth paved surfaces are carefree flying enjoyment are recommended. As a safety precaution always remove the cowl ring when flying although the original model did not nose over. There is always a first time and these rings are delicate. Use a 9" diameter, 6" pitch prop (scale diameter incidentally). It is not advisable to stunt until at least a dozen flights have been made. In this way you will be able to estimate your own and the model's ability.

Rumpler D-1

(*Continued from page 27*)

designation, 7 D-1, and was powered by a Mercedes 160 hp engine. It represented the ultimate in streamlining up to that time. The fuselage was long and elliptical, oval in cross section. The Mercedes engine was completely cowled in within a hump rising from a bullet shaped nose and prop spinner. The engine cowl faired right into the upper wing, which was flush with the top of the fuselage. The wing at this point was gulled down to form a beautiful job of fairing. The engine was actually placed under the gulled center portion of the wing, making it completely inaccessible for adjustment or repair. Obviously, this arrangement was not for a service type aircraft.

At the rear, the fuselage finished off in a sharp point. Structurally, the fuselage was made up of numerous ribs and stringers, the latter of very small cross section. Ribs were closely spaced and included two large members supporting the upper wing, and two supporting the lower wing. The latter formed the gulled portion of the lower plane.

Wings of the 7 D-1 were conventional. The upper was generally rectangular with slightly raked tips and with the trailing edge gracefully cut in at the center section to meet the fairing. The lower wing was of the Libelle shape—straight leading edge, elyptical tips and very narrow root chord. Wings were tied together by a single pair of I struts, one strut to each side.

The 7 D-1 rudder was a finless affair, roughly triangular and perched atop the fuselage at the tail. Horizontal stabilizer and elevators were conventional. The landing gear also was a conventional unit, with legs made of steel tubing.

That, briefly, was the initial experimental model Rumpler "super-fighter." No doubt it was a fast airplane but there could be some question about its general handling characteristics.

Following completion of flight tests on the 7 D-1 there came a period of design changes, in which the designers apparently tried to make this basic research plane into something worth while military.

Using the same configuration, a number of fuselages were built and tested to determine the sturdiest construction compatible with simplicity in manufacture. The original 7 D-1 was plywood covered by the panel method, then covered with doped cloth. Another fuselage was planked, boat style, and still another was spiral-wound with several very long strips of thin plywood.

Eventually there was evolved, in models 7 D-4 and again in 7 D-7, an application of plywood covering on the front and rear thirds of the fuselage, leaving the central third fabric covered over numerous stringers. Presumably this was to improve main-

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tenance in combat by substituting easily patched fabric for plywood where the majority of the Allied bullets were expected to hit. Unfortunately the pilot was located in the fabric covered section.

Model 7 D-2 was equipped with a more conventional fin and rudder. In this case the fin was built into the fuselage and was a part of the body. There followed on successive variations a series of differently shaped rudders, some balanced and some not.

In all cases mentioned above, the radiator was in the upper wing. Experiments also were made with upper wing placement which eventually brought the conventional over-the-fuselage wing into use in model 7 D-4 and 7 D-7. This, of course, brought the engine into the open, where it could be maintained as in other aircraft.

The 7 D-4 and 7 D-7 variations of the original design were much more conventional looking craft, and were intended to combine the fine points of the earlier research aircraft into a useable service type pursuit plane.

Overall dimensions were slightly less. The wings, however, carried the same configuration. The fuselage was much shorter and deeper, and not nearly so perfect a streamline form. This permitted lowering of the engine and raising the upper wing. The lower wing, in turn, was faired into the fuselage in line with the bottom contour, rather than being attached to inverted gull stubs.

In these models, the I shaped interplane strut gave way first to a pair of conventional struts on each side, rigged with fore and aft landing and flying wires. Eventually these were replaced by a novel C shaped strut with single landing and flying wires. A balanced rudder also was fitted.

Finally enough changes were made in the 7 D-7 so that the model 8 D-1 was originated. The new ship actually was the Ru. D. I., culmination of two years effort to build a superfighter. Almost identical to the 7 D-4 and 7 D-7 models, the Ru. D. I description, continued next month, will suffice for all three, and will include dimensions and performance figures.

Buttercup

(*Continued from page 28*)

and light cement in place. When the motor block is added, it serves as a reinforcement for the gear. Scrap balsa block is used to shape the oil cooler.

The cowling cheeks are cut from 3/16" sheet balsa, and cemented in place. Sheet planking of 1/16" is then cemented to form the cowl and, when dried, cut to suit engine. With this completed, sand the fuselage and add the .032 tail skid. The fuselage can now be covered. We used *Skysail* tissue. Spray covering with water and when completely dried, brush on two coats of clear dope.

The tail assembly is of simple construction; 1/16" sheet is used throughout. Butt cement two pieces of 2" wide sheet, long enough to lay out the stabilizer and rudder. Cut the sheet to their proper outlines and sand smooth. Give each unit two coats of clear dope; light sand after each application.

The stabilizer is the first to be cemented in place, then the rudder. Be careful that 90° alignment is maintained. When this assembly is dried, give the fuselage and tail a coat of colored dope. Testor's insignia red was used. When dope is dried, cut the fuselage stripping from yellow *Trim-Film*. For the numerals on the rudder a decal plate was acquired, with numbers 3/8" high. Place the numerals as shown on both sides of the rudder. Using black *Trim-Film*, add the hinge lines for both elevator and rudder. Now give the model one coat of fuel proofer—two coats to the inside of the cowling. When dry, bolt the engine in place, and solder the retainers for the 1" rubber wheels. Thin celluloid is used for the cabin, and no. 60 thread is used for rigging.

Wing construction is conventional. Cut 16 W-1 ribs, and 3 W-2 ribs from 1/16" sheet balsa. Notch all ribs for spars and leading edge as shown. Place wax paper over the drawing, then secure to the work bench the 1/8" x 3/8" training edge and spars of 1/8" square. Add the ribs as shown, then the 1/16" sheet tip reinforced with 1/8" square. Both panels are built first and then propped up for 1¼" dihedral. The center section is then added. The center section carries two reinforcement spars of 1/8" square on the upper camber. Midway on both panels, two squares of 1/16" sheet are cemented to the rib for strut mounting.

When the wing is completely dried, remove the bench and sand to required airfoil shape, which in this model is Clark Y. The structure is then covered with *Skysail*, lightly watered and when dried, given two coats of clear dope. Follow with one coat of plasticized dope—about 3 drops of castor oil to 1 oz. of thinned dope. Light sand to reduce nap; then brush on one coat of red dope. The wing is then cemented in place. Be careful of alignment.

Trim the wing with numerals and aileron outlines as shown, using black *Trim-Film*. The wing struts are cut from 3/32" x 3/16" stock (from 3/32" sheet) and sanded to a streamlined shape. Give them a coat of clear dope, then a coat of colored. Cement in place. To complete the *Buttercup* apply one coat of fuel proofer to wing. The model is now ready for the flying field.

The author's model required very little adjustment prior to powered flights. The model has a flat glide to the right, and under power climbs to the left. Much to everyone's surprise including the writer, *Buttercup* turned in some swell flights.

Now a word or two about the Class A and controline version. You will note that the drawings give you your choice of model, the only difference being in a beefed up ship all the way. Make the fuselage 1/8" sheet and the tail surfaces 1/8" sheet. For not too sensitive a control, only the right half of the elevator is used for movement. The wing has a beefed up leading and trailing edge, ribs being the same. Here a solid tip is suggested, and of course a different engine mounting arrangement.

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Design Detail

(*Continued from page* 30)

low-wing type that is hard to beat as a sport model. Keep the thrust line low—resist the temptation to invert the engine for looks—and you'll avoid most of the trouble. Where 1" dihedral per foot of span is adequate for high wing sport models, up to one and 1½" per foot of span is recommended for low-wings, but more than this is never necessary. Keep the rudder small and low in profile. Stabilizer can be streamlined to semi-lifting section, about one-third of wing area. The longer the nose, and this is true of all models, the more sensitive the thrust offsets. So give the low-wing a moderately long nose and adjust the thrust line carefully in test flying. For best results, allow it to turn left under power and left or right—as it will—in the glide.

Free flight scale jobs, Figure H, call for some compromising. Generally we cannot fly safely and well if exact scale is adhered to. A real airplane is designed to be controlled; our model must be inherently stable, and we would like to see it land safely even though there is no one to flare out the landing in real plane fashion. Problem one, however, is that of selection of prototype. Some craft obviously do not lend themselves to flying scale use. The Cessna 170 has been selected by one expert as ideal for flying scale gas modeling. A glance at its clean lines and proportioning tells us why. Most scale types call for lengthening of landing gear, as well as swinging it forward somewhat, enlarging of tail group, particularly the stabilizer, and increasing wing dihedral. If theship has struts, they had best be attached with sheer pins or other means to allow them to fly off in a bad landing. A rigid wing-strut-fuselage assembly will ultimately cause trouble if you expect to do much actual flying.

Official AMA News

(*Continued from page* 25)

become one of the foremost competitions in the United States. Proof that it is really an international event is the fact that it is the first known U. S. meet in which Mexico has had an official representation. The Mexicans did quite well, too, winning two firsts in Free Flight Gas events. Entries were recorded from as far North as Buffalo, N. Y. Plans are underway to hold the Second Tangerine Internationals on the 28th, 29th, and 30th of December this year. Can you think of a better place to spend a December week than in Orlando, Fla.?

More Rules' Changes. In reporting the changes to the regular AMA Rules last month, no mention was made as to the outcome of the proposal to eliminate the regulation requiring AMA license numbers to appear on certain model categories. Since the proposal did not meet with approval and the ruling was not changed, no mention was made. However, we do have a word of advice: Put your AMA numbers on models before going to contests if this rule applies to your model, for you will be confronted with the necessity of doing so with a crayon pencil or some like device. For the first time, Contest Directors have been asked to enforce this ruling to the fullest extent since it has been found that this requirement is the best method of assuring that the flyer is the builder of his entries. A set of decals or a nice hand-lettered job look a whole lot better than numbers put on with a crayon pencil!

By the way, now is a good time to apply for an AMA number or renewal of your previous one if you haven't done so already.

Walt Good, Chairman of the AMA Radio-Controlled Model Airplane Committee, has announced the additions to the 1950 AMA Radio Control Rules which will be effective this year: G. *Stunts.*—(z) Landing Perfection: Smooth, straight, no-bounce landing—40 points; Bounce, ground loop—less points; Crash or flip-over—no points. H. *Field Rules.*—(f) For contests which last several days, it is suggested that the allotted flying time be divided into daily segments. For ex-

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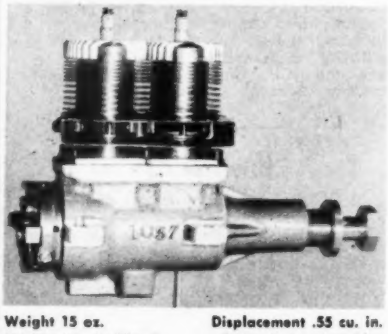

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ample, a thirty minute total would split into ten minutes per day in a three day meet. Unused time would not be carried over to the next day. Thus, a day of bad weather would affect all contestants equally; for single day meets, the time may be split into two periods (morning and afternoon) which would help equalize the flying conditions for all. Maximum total flight points now are 475.

The AMA experimental license, KGX2DA, has been renewed until November, 1951. This allows the operation of five transmitters by individuals designated by the AMA Radio Control Committee. Purpose is to test the 27 mc band in flight in many areas of the country.

Walt tells us that the exact frequency used for the experimental license is 27.255 mc which is very close to the amateur's 11 meter band. Those of you who are "hams" can help the cause by flying on 27.230 mc, the edge of the band, and only .025 mc from the test frequency! Walt asks that you report the results of all flight tests to him on report forms which can be had by writing Walt Good, c/o AMA, 1025 Connecticut Ave., Washington 6, D. C. A large number of favorable reports could lead the way to having the F. C. C. grant the 27 mc band to radio controllers on a license-free or simplified license basis. It's worth working for!

The Controline Team Racing Rules Committee, Capt. H. M. Bourgeois, Chairman, has completed the additions of the rules which will be effective this year. Major changes are those making the 5 mi. race into a heat to be flown by all entrants and the removal of model appearance and realism from the point category into a separate award category. The use of another flag with which to control flight operations has been added, and it is a yellow one which means for the flyer to maintain a minimum altitude of 15'.

Wakefield Rules' Additions. Each competitor can enter only two machines but he may use their components in any combination he desires provided the machine still complies with the regulation appertaining to the contest. (This is new rule 8, the old rule 8 becoming rule 9.) In old rule 8, line 4 is amended by the substitution of the figure 10 for the figure 5.

Club Highlights.—Maryland Team Racing fans are in for a treat if the Baltimore Model Aero League succeeds in setting up a Team Racing circuit, as it is interested in doing. If you go along with the idea, why don't you drop a line to James Snyder, Chairman of the BMAL, 3107 Normount Ave., Baltimore 16, Md. It might be possible for the circuit to include neighboring states too.

Coffee and doughnuts after meetings brings a lot of modelers out on winter nights for club meetings, says the Dundalk Model Airplane Club, Baltimore, Md. Another stimulant is that of the club's making its own prizes for special awards . . . and we mean special! Prizes made thus far include placques on which a broken prop, an old G.H.Q. motor, and a horse shoe are mounted. The one with the old motor goes to the member with the balkiest engine (no slam to G.H.Q. intended). You guess the others! Other prizes are miniature bushel baskets and "tin can trophies." The "tin can trophies" are really tin cans of different sizes stacked one upon another, standing 18" high, with a door knob and airplane on top. The awards are voted on monthly. There's an interesting project for you!

We wish all you club secretaries would send in news like this Dundalk Club does. Another thing they did last year that was a hit with all the membership was to put on demonstrations at orphan homes and children's hospitals. They're already receiving invitations for return visits.

The Aero Busters of Rhode Island are interested in new members and in corresponding with other clubs. Write to John E. Taber, Secretary, 88 Nichols St., Providence 4, R. I.

Sad news comes from Port Huron, Mich., in the report that the Inter-City Model Club's flying field which has been used for the past two years has been lost. Their field

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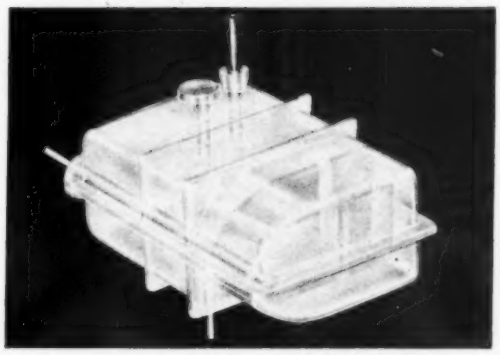

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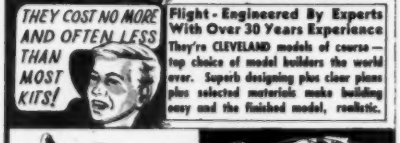
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was the construction site of the St. Clair County Airport which will be open for full size aircraft this spring. A note to the president: Although use of the St. Clair County Airport for both free flight and controline are probably just about out of the question after the field has been opened, it is within the realm of possibility that a portion of the field could be set aside for controline flying if your plea is properly presented to the field management. This sort of arrangement has worked well in other sections of the country and there is no reason why it should not work in Port Huron. The sight of a stunt or speed model flying around attracts quite a lot of attention. This attention could be put to advantage by both the club and the airport management.

The Ilini Liners are unique in many ways but what club wouldn't be if they had an armory 200' wide by 400' long with a 99' unobstructed ceiling! These University of Illinois boys can be found flying controline models in the armory every Tuesday between 7 and 10 P.M. Modelers are invited to bring a plane and visit any Tuesday evening.

The Woonsocket, R. I., Flying Fools have a nifty idea for building up modeling interest; that is if their models hold up. An invitation was extended to spectators at their flying field to fly one of the member's controline trainers. We haven't heard yet if the model is still in one piece.

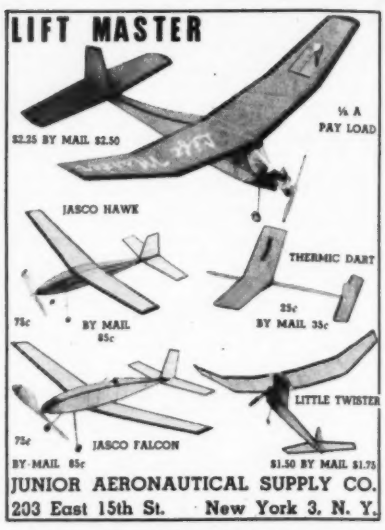
The Western Associated Modelers is to set up rules for the presentation of an Improved Flyer Award. Mr. James D. Ryan, Recreation Commissioner of Martinez, Calif., announced at the W.A.M. 2nd Annual Dinner Meeting that a trophy will be made available to be awarded during 1951. Awarding the trophy to the most deserving modeler will probably be a tricky proposition. Such an award should go a long way in bringing about the betterment of modeling among the youngsters.

A name that will be missed when reading listings of AMA Sanctioned Contests will be that of Ocie Randall who has gone into voluntary retirement from the post of Contest Director for the Fresno Gas Model Airplane Club and other clubs after having served for 10 years. He'll still be editor of *Fresno Model News*, though, which has been published once a month for six years without a single issue being missed.

At a recent meeting of the Rubber City Aeronauts, one of the Founders, Pop White, was present to bid his many friends goodby. Pop suffered a heart attack last summer while helping at one of the Cleveland model meets and on doctor's orders is moving to Azusa, Calif. We join the RCA in wishing Pop the best of luck in the future.

Via the *Aeroneer*, top flight club publication of June and Jack Dyer, Brisbane, Calif., we learn of the *Elmhurst Prop Busters* eleven ways to kill a club.

1. Don't go to meetings.
2. If you do go, be late.
3. If the weather doesn't suit you, don't think of going.
4. If you do attend a meeting, find fault with the work of the officers and other members and never offer or submit a remedy for the things you find fault with.
5. Never accept office, since it is easier to criticize than to do things.
6. Nevertheless, get sore if you are not appointed on the committees, but if you are, do not attend committee meetings.
7. If asked by the chairman to give your opinion on some matter, tell him you have nothing to say. After the meeting though, tell everyone how things ought to be done.
8. Do nothing more than is absolutely necessary and when members roll up their sleeves and willingly and unselfishly use their time and ability to help matters along, howl like the devil that the club is run by a clique.
9. Hold back your dues or don't pay them at all.
10. Don't bother about getting new members. Let George do it.
11. In short, don't bother to attend meetings but once a year except maybe on



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election night and then try and undo everything that has been accomplished by organized effort.

Although the Army persists in trying to make *The Flying Bisons* smaller in number, the club is now stronger than ever, says Vincent Chimera, the Bisons' new corresponding secretary. The highlights of the Bisons' winter program are their weekly interclub contests held in the armory at Best and Masten Sts. Anyone living in the Buffalo area should get in touch with Vince Chimera, 523 Linwood Ave., Buffalo, N. Y.

The *Salem Model Masters*, 163 North Commercial, Salem, Ore., would be appreciative if all club secretaries in the Northwest would place their name on lists for contest announcements. So far, the club has not run any contests of their own, but have joined with the *Eugene Prop Spinners* and *Springfield Do Dos* in monthly get-togethers flying controliners. These get-togethers aid greatly in getting models in shape for the contest season, besides having loads of fun.

Seems as if this model instruction program is catching on all over the country as evidenced by experts from John Sullivan's recent communication.

"We have in our community (Schroon Lake, N. Y.) a population of about 900 in the winter (natives they call them). Of these, there are a dozen or so in the 6-14 year age bracket who have asked me to help them build models.

"Now the main troubles up here are mountains and woods. Having lost C rubber jobs and one AA F.F., I turned to controline stunt and speed, saving my free flights for infrequent trips to an unused airport over fifty miles away.

"My controline flying was done in the school yard and, of course, every time I started an engine there, five or ten boys were attracted. I built a trainer and installed an O & R "29" and soloed most of the boys on it (also my oldest daughter, age 10). A few of the boys have purchased motors and kits for controline models and these are what I have been helping with.

"What I'm afraid of though, is that as soon as they learn to fly the stunt pattern or else smash up too many ships learning to fly, the edge is going to wear off and they will drop model building."

The *Junior Museum of the San Francisco Recreation and Park Department* started holding model airplane contests in 1938, and since that time has kept a record of all the winning flights in each event. Each year new records have been established, and 1950 was no exception. In the past twelve months four members of the *Pterodactyls* have set seven new club records.

The Junior Museum is responsible for an excellent program in helping the youth of that area learn and apply the fundamentals of model flying.

International News.—The new international records that follow have been homologated by the F. A. I. and were announced in their Information Circular No. 50. Unless specifically stated, the records are for flying wing type models, rise-off-ground. Gas Models, Altitude—1788 meters (5866.127'). Established by M. Boris Parparov (Russia) on August 12, 1950. Gas Models, A.O.W., Altitude—1550 meters (5085.292'). Record established by M. E. Rakov (Russia) on July 28, 1950. Gas Models, Controline Speed, Special Aircraft (having movable lifting surfaces), Category II (5 cc. max. disp.)—67.320 km/h. (41.834 mph.). Record established October 17, 1950 by V. Voldemar Rounkov (Russia) using a 4.421 cc. engine. Gliders, Altitude—547 meters (1794.616'). Record established by M. Moti Koutcer (Russia) on August 17, 1950.

Concluding the postal ballot for election of 1951 *Society of Model Aeronautical Engineers* officers, the following have been elected to serve.

Chairman, A. F. Houlberg; Vice-chairman, R. F. L. Gosling; Secretary, D. A. Gordon; Treasurer, H. W. Barker; Competition Secretary, E. D. Taylor; Technical Secretary, M. A. Coote; Records Officer, C. S. Rushbrooke; Public Relations Officer, K. Brookes.

AMA Sanctioned Contests.

April

22—Class AAA Wakefield Elimination in the

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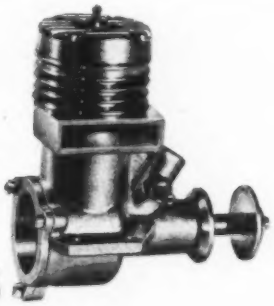

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The new ½A PAA Load Event is for free-flight gas models powered by engines of not exceeding .050 cubic inches displacement and carrying a three-ounce dummy occupant. Two age classes in this event. Junior-Senior Combined (under 21), and Open (21 years and over). First prizes $100, second $75, third $50.

A models with eight-ounce loads and **B models** with sixteen ounces get an even break. Two age classes. Junior-Senior Combined (under 21), and Open (21 years and over). First prizes $100, second $75, third $50.

Clipper Cargo. A Model Clipper Cargo Event is open this year (at the Nationals only) to all ages. The winner will be the entry carrying the greatest payload in an official flight and landing it safely with load intact. First prize $100, second $75, third $50.

For detailed rules, write to Educational Director, 28-19 Bridge Plaza North, Long Island City 1, N. Y.

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Western area. Write to Russ Johnson, 344 Duane Ave., San Gabriel, Cal., for information.

May

6—Millville, N. J. Season Opening Record Trials for CL, FFG, and OR. Charles Errickson, Contest Director, 31 Walnut St., Bridgeton, N. J.

6—Fontana, Calif. Hi Tailers 1st Annual AA PAA Load Contest. Pending.

20—Class AAA Wakefield Eliminations in Mid-western and Eastern areas. Write to nearest Wakefield Committee member for information: Ed Lidgard, 814 Bryan St., South Bend, Ind.; Bill Fletcher, 8708 Grand Ave., Elmhurst, L. I., N. Y.

20—Sacramento, Cal., Class AAA Wakefield Semi-Final. Entry is restricted to those who place within top 15% at eliminations.

20—Shelby, Ohio Class A Shelby Balsa Buzzards' Hobo Meet for FFG. Entry is restricted to residents of the northern half of Ohio. H. L. Robinson, C. D., Shelby Pure Milk Co., Shelby, O.

June.

3—Bethpage, N. Y. Class AAA Ltd. 6th Annual Mirror Model Flying Fair. Events: CL, Navy Carrier, CLS, FFG, PAA Load, RC, and CL Beauty. Entry blanks may be obtained from the New York Mirror, 235 East 45th St., New York 17, N. Y. Entry is restricted to the first 1000 entrants.

3—Minneapolis, Minn. 2nd Annual Talent Scout Contest. Pending.

10—Chicago, Ill., Dallas, Tex., Atlanta, Ga., and Phila., Pa. Class AAA Wakefield Semi-Finals. Entry is restricted to those who place within the top 15% at eliminations.

16 & 17—Atlanta, Ga. Class AAA Southeastern Model Air Meet for HLG, TLG, OR, FFG, CL, CLS, and CLFS. William Yarbrough, C. D., 1953 Piedmont Rd., N. E., Atlanta, Ga.

17—New York, N. Y. Class AAA Long Island Gas Monkeys' Championships. FFG and PAA Load events are scheduled. Ernest Roff, C. D., 56 Stuart Ave., Malverne, N. Y.

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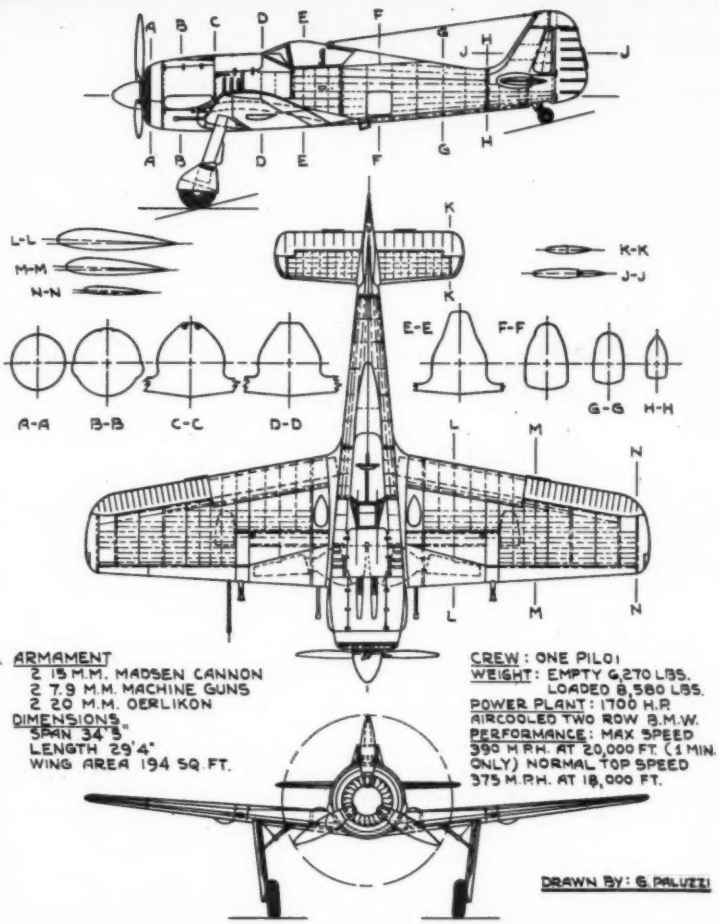

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GERMAN INTERCEPTOR FIGHTER

30—Detroit, Mich. Class AAA Michigan State Exchange Club Contest for OR, FFG, CL, CLS, PAA-Load, and RC. Entry is restricted to residents of Michigan. Frank P. Sposite, C. D., 9900 E. Jefferson, Detroit, Mich. This is a two day meet. Second day is July 1.

July

1—Shelby, O. Class AA Shelby Balsa Buzzards' 6th Annual Meet for FFG and OR. H. L. Robinson, C. D., Shelby Pure Milk Co., Shelby, Ohio.

22—Falls Church, Va. Pending.

August

19—Hicksville, N. Y. Class AA Long Island Invitational AA Championships. All AA Free Flight events are scheduled including ROW, Flying Scale, and Clipper Cargo. William Johnke, C. D., 601 Meadowbrook Rd., Uniondale, Hempstead, N. Y.

20-27—Detroit, Mich. Class AAAA Ltd. Fifth International Model Plane Contest. Tentatively scheduled events are OR, OHLG, FFG, CL, CLS, CLFS, TR, Navy Carrier, and Combat. See your Plymouth Dealer for information.

September

2 & 3—Pawtucket, R. I.—Class AAA All New England Model Meet for CL, CLS, CLFS, TR, FFG, and OR. Arthur Bergeron, C. D., 55 Ricard St., Seekonk, Mass.

3—Far Hills, N. J. Pending.

9—New Britain, Conn. Class AAA Connecticut State Championships for CLS, CLFS, and CL. Richard Matava and Michael Adajian, C. D's., 358 Prospect St., Hartford, Conn.

Contests designated Pending mean the application is before the proper authorities as we go to press; Record Trials means no prizes, but a chance at cracking the records; Class A is a meet with restricted entry; Class AA is a meet with unrestricted entry; Class AAA is a state-wide or regional meet; Class AAAA is a national or international meet.

Here is the key to the listing of contest events: FFG—Free Flight Gas; CL—Controline Speed; OR—Outdoor Rubber; TLG—Towline Glider; OHLG—Outdoor Hand-Launched Glider; CLS—Controline Precision (Stunt); CLFS—Controline Flying Scale; RC—Radio Control; TR—Team Racing.

Simple Motor Control

(*Continued from page 32*)

them. In our ship we used a wiper arm for movement of the choke control. Every time it came to bottom neutral position it forced the wiper arm down thus plunging the choke stopper into the intake tube. However, a similar arrangement could be used where intermediate controls of speed were desired in right and left turn. Although even this type of movement can be adjusted for only high and low speeds if desired by increasing the moment arm swing.

As small as the engine is, a definite high and low speed was obtained without any cutting out and the adjustment was as easy as changing the needle valve setting. On low speed it just about cruises along. With high speed it really buzzes and does almost everything in the book. You will see in the figure, low speed is only given on one neutral, turns and the opposite neutral are high speed. The fast in turns is to get the spins, loops and wingovers, but it does not affect normal turns, as they are smooth and the 360's do not end up in spins.

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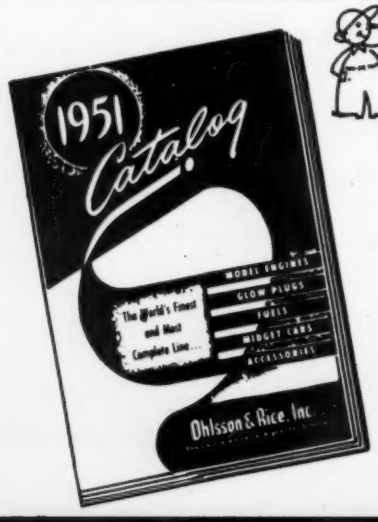

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effectively with larger engines and more for sport flying. This is done by adjusting the rubber cork to travel more critically from high to low, which has three stop points. If low is not wanted, through a run of maneuvers the transmitter can be keyed quickly enough through neutral-low and the following turns to neutral-fast. For you fellows that already have your ship built with one channel and just have rudder control, here's what you can do. You more than likely have your escapement mounted in the rear section of the fuselage. Well that rules out the possibility of using it for motor control because its position is impractical. But here's what you can do. Mount another escapement in the front, as near to the motor as possible. And from this escapement take your choking action, but be sure that it is 90° out of phase with the rudder escapement action. When rudder is neutral motor is either high or low and when the motor is at neutral then the rudder is at either right or left. Sure, this will cost you another escapement, but it will save you another receiver, relay and transmitter. In other words two controls with one channel. It is needless to say that both escapements should be hooked up in parallel or the same places on the receiver relay.

Another interesting possibility is that it would be nice if when you signaled low motor control the plane would actually descend. This is not likely to happen due to the inherent gliding qualities of models; however, why couldn't just enough "down elevator" be given with low motor control to make the ship assume a gentle descent, (of course, you would want no "up elevator" at all). This elevator control could be taken from the same motion as the low motor control and thus they would both be activated at the same time. Three controls on one channel! That's going some. The receiver and escapement are Control Research.

Controller Box

(*Continued from page* 33)

The control consists of a small wooden box, 3-1/4" x 3-1/4" x 1" containing a leaf with roller type micro-switch secured to the top which goes to an open circuit, or no current position, when no pressure is exerted against the roller. The top and bottom faces of the box are 1/8" plywood with the four sides cut from 1" x 1/4" balsa strip. Enclosing the switch keeps the dirt out and adjustment of the spring leaf holding the roller is not disturbed.

The control stick is in the form of a crank made from 1/8" landing gear wire and soldered to the head of a 10/32" x 3/4" long screw upon which is fastened the actuating cam. This cam is made from a 10/32" thread anchor nut procured from a local war surplus store. If the nut cannot be procured, a substitute can be made from an iron washer with a nut on each side to keep it from turning on the shaft. Very little drag is against the washer due to the extremely low pressure and movement required to trip the switch. The lobe on the cam should be flat to give a broad "on" position which is rep-

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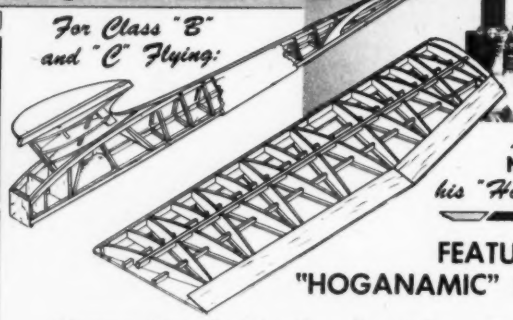

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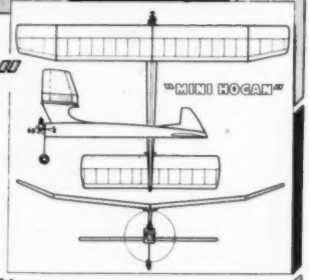

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resented on the box by either right, left, up, or down, according to the position of the crank on the box. The box is held in the hand with the hanging fitting held away from the body, and the position of the crank indicates the position of the rudder as follows: starting at neutral the crank is straight up; by rotating crank to the right the rudder (assumes a right turn position. When the crank is straight down, the rudder is again neutral and the rudder then goes to left as the crank is advanced to the left hand position. Neutral rudder is again assumed as the crank is turned to the up position. Repeated turns can be made in the same direction by simply turning the crank through a full turn rapidly and the ship will not change position, due to the speed of the action, as the rudder passes through the opposite turn. The rudder will follow the crank regardless of how fast it is turned and will always end up in sequence.

To synchronize the crank to the rudder, it is only necessary to turn the crank to right or left, and observe rudder position. If reversed, back crank one quarter turn to the left and then back to the same position and control will be synchronized. This can be done while the ship is in the air if a position is skipped or a signal is missed by the receiver due to distance or dead area.

The above description applies to the self-neutralizing or two position escapement. Four position escapements require a four lobe cam to accomplish the same controls. A dual crank box is used when both rudder and elevator controls are used, one crank for each control.

This switch can easily be installed in existing equipment by substituting present push button switch with a common microphone jack fitting and installing the jack on the end of a six or eight foot #2 wire cord leading to the box. The box is in series with the B battery lead, either positive or negative.

With practice and good distance judgement, extremely accurate spot landings and good acrobatic flying can be done using this control.

INDEX TO ADVERTISERS — MAY, 1951

A-J Aircraft Co. 10
Ace Products 45
Aeromarine Co. 42
All American Model Motor Exchange 50
American Telasco, Ltd. 51
America's Hobby Center, Inc. 6, 7, 8
Mel Anderson Mfg. Co. 47, 55
Arnold & Fox Engineering Co. 51
Atwood Manufacturing Co. 44
Austin-Craft Co. 45
Banner Fireworks Corp. 50
Berkeley Models, Inc. 56
Buckeye Fireworks Co. 44
Carter Craft Models 40
Cleveland Model & Supply Co. 50
Comet Model Hobbycraft, Inc. 1, 2, 3, 4
Consolidated Model Engineering Co. 52
Crescent Model Shop 48
Dealer Directory 54
Dooling Brothers 44
Duro-Matic Products Co. ..... 4th Cover
Dyna-Model Products Co. 46
F & B Model Aircraft Co. 43
Flo Torque 41
Four Star Model Builders Supply 38
Francisco Laboratories 52
Girard Industries 46
Gotham Hobby Corp. 40
Guillow, Paul K. 45
Gull Model Airplane Co. 42, 44
Herkimer Tool & Model Works, Inc. 39
Junior Aeronautical Supply Co. 50
K & B Manufacturing Co. ..... 3rd Cover
Vernon C. MacNabb Co. 48
Mod-Ad Agency, The 6
Mod Kraft Co. 48
Monarch Model Aircraft Co. Inc. 49
Monogram Models, Inc. 37
Ohlsson & Rice, Inc. 54
PAL Engineering Ltd. 48
Pactra Chemical Co. 53
Pan American World Airways, Inc. 52
Scranton Hobby Center 38
Speed-O-Lag Products Co. 43
Sullivan Products 49
Super-Cyclone, Inc. 36
Testor Chemical Co. ..... 2nd Cover
Top Flite Models, Inc. 40, 41
United States Rubber Co. 9
Western Model Distributors 46

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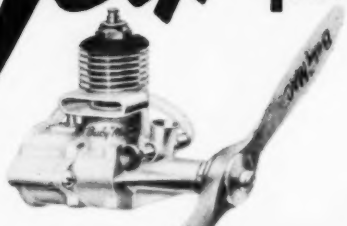

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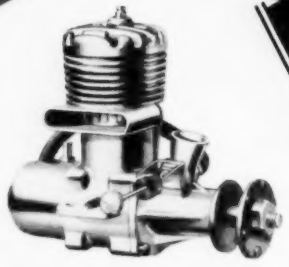

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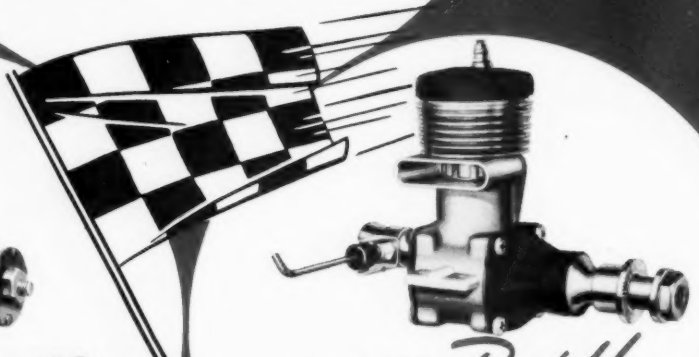

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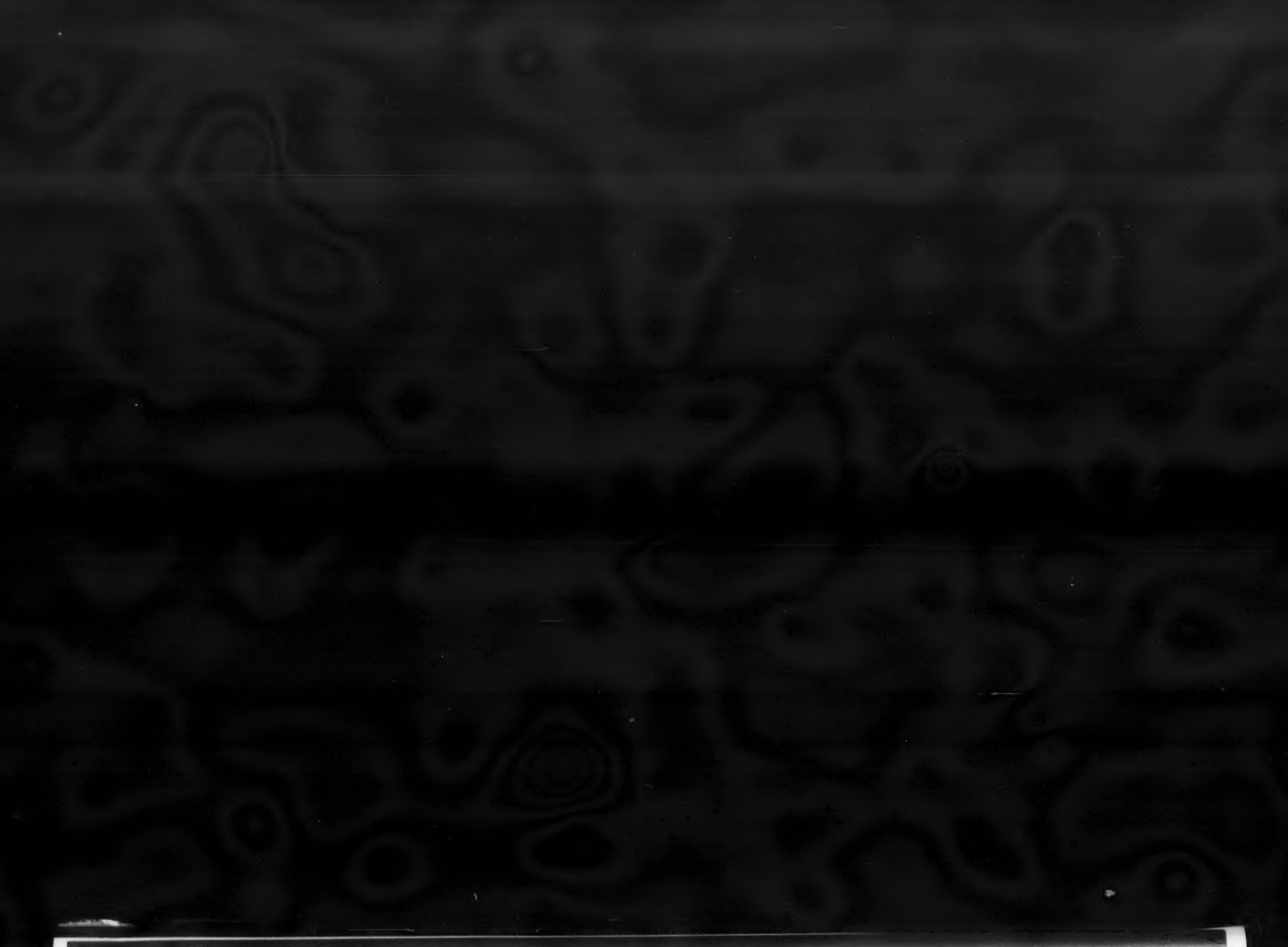
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